PERCEPTIONS OF HIV RISK AND PREVENTIVE MEASURES AMONG FEMALE STUDENTS IN KOLKATA, INDIA

by

SOHINI DUTT

M.S., Calcutta University, 2005

AN ABSTRACT OF A DISSERTATION

submitted in partial fulfillment of the requirements for the degree

DOCTOR OF PHILOSOPHY

Department of Geography
College of Arts and Sciences

KANSAS STATE UNIVERSITY
Manhattan, Kansas

2011

Abstract

According to the UNAIDS (2008) estimates, in 2005, about 2.4 million Indians were estimated to be living with Human Immunodeficiency Virus (HIV). This makes India one of the most HIV vulnerable countries in Asia, and thus, this problem needs to be addressed with care. Few studies have investigated the knowledge and opinions of female college students of Kolkata, India regarding the effectiveness of HIV preventive measures; this study is expected to add a new dimension to HIV/ AIDS literature. The purpose of this study is to understand of HIV transmission and prevention among female college students (in the 18 to 24 age group) in Kolkata, India, who are widely believed to be members of the low risk group. A host of variables (e.g. socio-economic and behavioral) are studied in order to understand the belief patterns of these college students along with the effectiveness of existing preventive measures introduced by various public and private organizations. The study has important public health implications because the information collected can be used to design HIV prevention interventions that can reduce HIV transmission in West Bengal and other states of India.

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Approved by:

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Bimal K Paul

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Abstract

UNAIDS (2008) estimated, in 2007, that about 2.5 million Indians were living with Human Immunodeficiency Virus (HIV). This makes India one of the most HIV vulnerable countries in Asia and thus this problem cannot be ignored. The main purpose of this study was to gain an in-depth understanding of the awareness about HIV/AIDS preventive measures of female college students (in the 18 to 24 age group) in Kolkata, India, who were widely believed to be members of the low risk group. Specifically, the study measured the willingness to comply with HIV/AIDS preventive measures of the female college students. Few studies have investigated the perception, knowledge and opinions of female students regarding the effectiveness of HIV preventive measures, this study will add a new dimension to HIV/ AIDS literature. In order to assess the information available to the students an attempt has been made to examine the knowledge of the respondents concerning the modes of transmission of HIV and HIV prevention methods. The study also identified the significant sources of information that the respondents used to derive pertinent information enabling them to protect themselves from the virus. A host of variables (e.g. socio-economic and behavioral) have been studied in order to identify the factors influencing the willingness to comply with the preventive measures of these college students. From the results it was evident that religion, income and age play a role in influencing the students' willingness to comply. This study has important public health implications because the information collected can be used to design HIV prevention interventions that can reduce HIV transmission in West Bengal and other states of India.

Key words: HIV/AIDS, Kolkata, gender, perception, female, healthcare.

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Finally, no person can be successful without the love and support of her family. My deepest gratitude is reserved for all my family members without whom this research would never have been possible.

Dedication

To my family.

CHAPTER 1 – Introduction

Research Background

Acquired Immuno Deficiency Syndrome (AIDS) is called "acquired" because it is always contacted from someone else and it is called "immuno deficiency" because presence of the virus in the body destroys the immune system or the body's defense mechanism against diseases (Choubey, 2007). Human Immuno Deficiency Virus (HIV) causes AIDS. The virus lives in body fluids of the infected people which include semen, vaginal secretion, blood and breast milk (Choubey, 2007; Lamptey et al., 2006). It takes the body approximately 8-10 years to contract AIDS after it has contacted the HIV. Infected people can live without a symptom for years (Choubey, 2007).

Approximately 2.5 million people of India, which has a total population of slightly over 1.1 billion, are currently living with HIV/AIDS. (AVERT, 2010). This renders India as one of the most HIV vulnerable countries in Asia, so the problem cannot be overlooked or avoided. Jurich et al. (1992), Al-Owaish et al. (1999) and Lamptey et al. (2006) noted that even though scientific research has identified the retrovirus and the modes of its transmission, treatments have not been developed. Antiretroviral treatment can prolong the lives of the HIV infected but it does not cure AIDS (Lamptey et al., 2006). Since the cure for this disease is yet to be discovered, preventive measures deserve immediate attention (Jurich et al., 1992). Thus in the absence of curative measures, preventive measures must be emphasized. According to WHO (2006) HIV prevention and treatment have reciprocal benefits: HIV prevention would make treatments affordable while treatments would successively create significant opportunities for discovery of superior methods of HIV prevention.

According to UNAIDS (1999), individual risk of HIV/AIDS is directly influenced by cognitive, attitudinal and behavioral factors. It is determined by the amount of knowledge available to people as well as their perception of the issue. Societal vulnerability to HIV/AIDS results from the existent socio cultural, economic and political factors that limit the options available to the individual concerning risk minimization (UNAIDS, 1999). In most societies, men determine the amount and quality of information about sexual matters and behavior that is made available. Girls and women are thus often poorly informed about reproduction and sex while the natural expectation is that men would be well informed (UNAIDS, 1999).

With high rates of sexually transmitted diseases (STDs), widespread poverty, a large population of migrant workers, and low literacy levels, India provides almost ideal conditions for the rapid spread of HIV (Paul, 1994). The two primary methods of HIV spread in India are from foreign travelers to sex workers to truckers and then from the truckers to their families or among injecting drug users (Ghosh, 2002). The main mode of diffusion of the disease is through heterosexual relationships. Homosexual relationships and blood transfusion can also lead to the spread of the disease where the recipient of AIDS-infected blood gets the disease (AVERT, 2007).

UNAIDS (1999) have concluded that gender norms that have created a disparity in the quality and quantity of information available to men and women about HIV prevention can be linked to attitudes and behaviors that influence individual risk of HIV. The high value assigned to virginity in some cultures as well as cultures where women are expected to please men and surrender to male authority are responsible for forcing women to take part in high risk sexual behavior (UNAIDS, 1999). Men have been commonly reported to frequently change their partners and have a greater vulnerability to the virus (UNAIDS, 2009). Women in monogamous relationships often get exposed to the virus from their partners. It has been noted that these

women often prefer to continue to face the serious health issues associated with living in a high risk relationship rather than bear the negative economic consequences of leaving the relationship (UNAIDS, 1999).

The purpose of this research project is to gain an in-depth understanding of HIV transmission and prevention knowledge among uninfected female college students in Kolkata, West Bengal, India. This study will not focus on the commonly identified high risk groups which include female sex workers (FSWs), men who have sex with men (MSMs), male sex workers (MSWs), injecting drug users (IDUs) and bridge population groups that include mobile men, rickshaw pullers, truckers, and dockworkers. While the high risk groups have been extensively studied along with the low income groups, little or no attempt has been made to study groups that are vulnerable yet do not fall in the commonly identified high risk group. An emphasis on high risk groups has often given the impression that people who do not fall in the commonly identified high risk groups do not need to worry about the disease (Craddock, 2004). This has often left unexamined the 'vulnerability of individuals outside the high risk groups' (Craddock, 2004).

Those who are normally considered to be in the low risk group, often live in a false sense of security that it could never happen to them. These people constitute the general mass of population who often do not get themselves tested thinking that getting HIV/AIDS is not a possibility and thus unknowingly often get themselves exposed to the virus. Since women have lesser access to healthcare facilities, the chances for them getting tested is even less. As a result HIV/AIDS awareness among women has to be increased in order to ensure that they feel strong enough to voice their health related concerns and take suitable decisions. Educational institutes in India have started to have HIV/AIDS education programs to increase the level of awareness.

This study aims to consider the effect these programs have had on the risk perception of women and the level of awareness they have generated.

Vandemoortele and Delamonica (2000) are of the opinion that the social profile of AIDS epidemic is undergoing change. Initially it affected the educated mobile, better off and better off sections of the society. However with education and awareness, Vandemoortele and Delamonica (2000) are of the opinion that the behavior of the educated changes faster than the illiterate and the poor towards behavior changes like delay in sexual debut, reduction in the number of sexual partners, increased condom use and other positive health behaviors that reduce risk of infection. Vandemoortele and Delamonica (2000) have noted a declining trend in the infection rates among those with primary and post primary education in countries where HIV prevalence rates are on a rise. Studies like these believe the spread of the virus will reduce if the education level of women is higher, this study will look into the awareness level of educated women who have completed high school.

Women have greater vulnerability to the virus than men due to the existent level of inequality with regard to access to information (MacNaughton, 2004). Sexual innocence of women is the common expectation while it is the men who are expected to be knowledgeable and experienced about sexual matters (MacNaughton, 2004). It is a common belief that female ignorance of sexual matters implies sexual purity which is a desirable trait in many cultures. Women often are of the opinion that asking questions pertaining to issues concerning sex may make their virginity seem questionable and that is not acceptable. Women are thus often inadequately informed about sexual matters (MacNaughton, 2004). MacNaughton (2004) noted that in countries like India young women had little knowledge of their bodies, pregnancy, contraception or sexually transmitted diseases. This lack of knowledge has been identified as the

root cause of their increasing vulnerability to the disease. The research attempts to elaborate on the thought process and the perceived vulnerability of the students to AIDS.

Indian trends for the spread of HIV seem to be different from the global trend. While the global trend shows that the spread of the disease has leveled off, trends in India are increasing (Hossain, 2007). This may be due to two reasons. First, an increasing population is getting exposed to the virus, and secondly, more people are getting tested. In India, women are highly at risk of contracting HIV (Sharma et al., 2001). Social and economic vulnerability has resulted in greater feminization of HIV/AIDS epidemic in India of which women make up 39% of total HIV/AIDS cases (Ghosh et al., 2009). Figure 1.1 illustrates the estimated state-wide adult (15–49) HIV prevalence in India for 2006.

In the AIDS Epidemic Update 2007 published jointly by United Nations Program on HIV/AIDS (UNAIDS) and World Health Organization (WHO), it was pointed out that the national adult HIV prevalence in India in 2006 was 0.36%. Even though this value seems low, the epidemic affects a large number of people because the country has a large population base. The commonly used phrase "low prevalence" does not have the same meaning as in low populated areas, here, in absolute terms, the number is large (see Hossain, 2007). In Figure 1.1 an attempt has been made to provide a glimpse of state-wise adult HIV prevalence. However, since the latest map could not be obtained, data have been projected on an older map. Uttaranchal, Chattisgarh and Jharkhand had HIV prevalence rates in the same class as the parent states of Uttar Pradesh, Madhya Pradesh and Bihar respectively. As a result they have been mapped with their parent states.

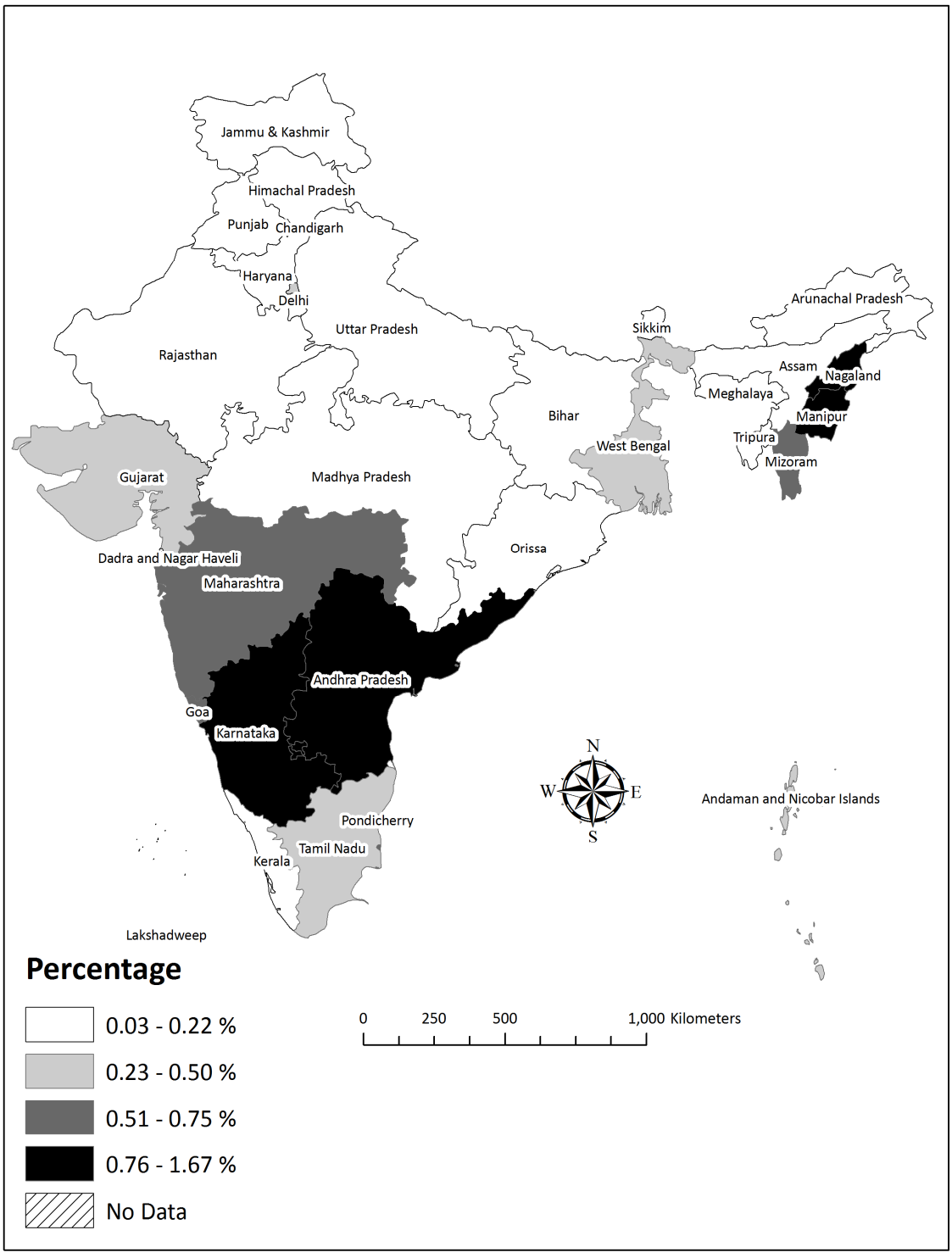

Figure 1.1 Estimated adult HIV prevalence (15-49 years), by state, India, 2006

Source: NACO, 2007 (a)

Figure 1.1 clearly shows that the states of Andhra Pradesh, Karnataka, Manipur and Nagaland have the highest estimated adult prevalence rates. Goa, Mizoram, Maharashtra and Pondicherry lie in the second highest tier with regards the adult HIV prevalence. The states that are present in the second tier are Andaman and Nicobar Islands, Chandigarh, Delhi, Gujarat, Tamil Nadu and West Bengal. The rest of the states have an estimates adult HIV prevalence percentage less than 0.22%.

According to the UNAIDS and WHO report (2007), India has expanded "HIV sentinel surveillance system" and "the number of surveillance sites has been increased from 155 in 1998 to 1,120 in 2006". Sentinel surveillance implies monitoring of rate of occurrence of specific conditions to assess the stability or change in health levels of a population. It is also the study of disease rates in a specific cohort, geographic area, and population subgroup. The report published by UNAIDS and WHO (2007) also mentions that HIV/AIDS cases reported are not the same all over India, but vary regionally. Tamil Nadu, Maharashtra, Karnataka, and Andhra Pradesh show a declining trend among pregnant women and an increasing trend among sex workers. Further, this report shows that there is an increasing trend of AIDS exists among Intravenous Drug Users (IDUs) especially in the states of Nagaland, Manipur and Mizoram (UNAIDS and WHO, 2007).

AVERT (2007) traced the history of the spread of the disease in India and noted that India lacks the scientific knowledge and infrastructure required to deal with the AIDS epidemic and in addition, the existing cultural taboos do not support open discussion of sexual practices. Widespread poverty and malnutrition, and a lack of capacity to test and store blood act as obstacles to the path of the governmental and non-governmental control of AIDS diffusion. Poverty indirectly also makes an individual vulnerable to HIV/AIDS. Since people concentrate on earning for the basic means to sustain livelihood they have little time and energy available for

attending health camps and workshops or paying attention to awareness related media campaigns aimed at promoting AIDS awareness (Ghosh et al., 2009).

West Bengal is among the better of the Indian states currently with low HIV prevalence rates, but the actual number of persons infected is increasing (UNAIDS and WHO, 2007). According to the data collected by School of Tropical Medicine in Kolkata, approximately 18-20 people attain positive tests every day (Choubey, 2007). High rates of disease prevalence within the state are found in Kolkata, Haldia, Siliguri and Midnapore (Choubey, 2007). In West Bengal there are primarily two sources for the spread of the disease. They are: sexual transmission (mainly heterosexual relationships) and intravenous drug use.

The modes of spread of HIV within the state are not uniform. Labor in-migration is believed to have contributed towards greater disease incidences in Kolkata and Haldia (Choubey, 2007). The existence of both rural and urban red light areas has increased the level of vulnerability in the state. According to Choubey (2007), the presence of army and para military forces along the state's international border with Bangladesh has contributed towards the development of sprawling red light areas in the region. The villages around the army bases also have a high number of sex workers providing entertainment to those in the army. It is considered such a lucrative trade that women travel long distances to join the trade. Such villages, offering sex workers to army men are common in North Bengal. There are programs that are targeted towards rehabilitation of sex workers. However, such programs have failed due to greater monetary expectations of the sex workers (Choubey, 2007). In the cities like Kolkata, as well as in Northern districts of West Bengal, intravenous drug use is quite prevalent, thus, increasing the risk of contacting the disease.

An estimated 1 million of the above stated 2.5 million suffering from HIV/AIDS in India are women (National Aids Control Organization (NACO), 2007). Ghosh et al. (2009) are of the

opinion that the unequal power relations and differential economic status between men and women increase the susceptibility of women to the disease. The West Bengal State AIDS Prevention and Control Society (WBSAPCS, nd) has identified several reasons that have made the state vulnerable to HIV/AIDS. They are poverty, human trafficking, sexual exploitation, gender inequality, migration, poor awareness levels among the youth, stigma and discrimination, and status of the healthcare sector. For women in particular, early marriage, violence and sexual abuse are major socio economic reasons for their vulnerability to the disease (NACO, 2007). According to Sharma et al. (2001) in metropolitan cities like Kolkata, women living in hostels often lead a liberal lifestyle which is hidden from their family. As a consequence, the chances of practicing high risk sexual behavior are greater thus making them more vulnerable.

College students in Kolkata often live in hostels and thus they fall into the vulnerable group, who are often ignorant about their high risk of exposure to HIV. Unless tested positive, they refuse to believe that it could happen to them. The number of people, with whom they can discuss about the disease, being few, is also an issue of concern. In the age group under consideration (18–24 years), those who have entered the labor force tend to lead a more liberal lifestyle than those who depend on their guardians for money (Sharma et al. 2001).

Research Objectives

According to Craddock (2004, p. 4), "Women are reservoirs of infection". Ghosh et al. (2009) have cited a number of reasons for the high vulnerability of women to HIV/AIDS in India. The reasons are many and relate to the socio economic and cultural position of women (Ghosh et al., 2009). Existing taboos and cultural norms set the stage for early marriage, lower literacy, lower level of awareness about sexually related aspects along with HIV/AIDS, lower

authority over finances as well as lesser choice with regard to reproductive and sexual behavior are some of these reasons (Ghosh et al., 2009).

NACO (2007) outlined several reasons leading to high vulnerability of women to the disease that prompted me to select them as the subject of my research. In case of a country like India, abstinence and condom use are not decisions that are available for women to take as women are not expected to be sexually knowledgeable (NACO, 2007). The prevalent power mechanism, with regard to gender, provides very little controlling or negotiating power to women with regard to sexual relationships which often include marriage (NACO, 2007). Poor access to information and education is also a cause of high susceptibility of women to the disease since behavior change can control the spread of this disease (NACO, 2007). NACO (2007) believe that violence against women (e.g.; rape, incest, assault by family members, violence during trafficking or in the workplace) and HIV/AIDS are directly inter-linked. Inequality in the access to healthcare for women makes matters worse as they get lower priority with regard to health and have less power in making health related decisions (NACO, 2007).

As noted the main purpose of this research is to gain a deeper understanding of HIV transmission and prevention among uninfected female students living in Kolkata in the age group of 18–24 years. Both socio-cultural and bio-behavioral variables will be studied in order to understand the belief patterns of the college students along with the effectiveness of existing preventive measures introduced at the local, national and international levels by the various government and nongovernmental organizations (NGOs).

The specific objectives of this research project are to:

1. Explore the knowledge female students, in the age group of 18–24 years, have regarding the modes of transmission and prevention of HIV/AIDS,
2. Find out the most effective source of information about the disease, and also find out with whom they are most comfortable about discussing HIV/AIDS related issues
3. Investigate respondent willingness to comply with the recommended HIV prevention measures, and the factors influencing compliance to the HIV/AIDS prevention measures.

The major thrust of this research however, brings on the third objective.

Study Rationale for HIV/AIDS

India being a poor country would find it more profitable to invest in preventive measures rather than investing in expensive curative drugs and therapies for HIV/AIDS. World Bank (2006) maintains that countries with low HIV/AIDS prevalence of the disease present immense opportunities to improve both qualitatively and quantitatively the HIV/AIDS prevention programs to keep HIV prevalence and incidence low. In West Bengal like in the rest of India, most of the government programs concentrate on high risk groups so the general population does not feel vulnerable to the disease. Unless the people are tested positive, they live with a false sense of security. Often policy makers and planners responsible for preventing the spread of AIDS find it convenient to and propagate the belief that the masses are not at risk.

There are various reasons why West Bengal is vulnerable to the disease. The most important reason is poverty. The WBSAPCS has pointed out that in 1999-2000, 27% of the population of the state was below the poverty level. Factors associated with poverty may also lead to a high spread of HIV. These factors are low levels of education and literacy, and poor

health status, which lead to low labor productivity. Among the poor, prevalence of undiagnosed sexually transmitted infections (STIs) and sexually transmitted diseases (STDs) is high which leads to an increased rate of HIV transmission (WBSAPCS, nd).

According to WBSAPCS (nd), human trafficking and sexual exploitation make up a "potent combination that facilitates the spread of HIV in the state". This organization also points out that gender inequality in the state facilitates the spread of HIV/AIDS, and a gender disparity index of 0.63 proves that women are in a disadvantageous state as far as decision-making is concerned, further increasing their state of vulnerability. A position inferior to men reduces their say in matters of using protection or preventive measures. West Bengal also has a large migrant population, who misses family life and often visits sex workers or leads a liberal lifestyle thus often ignorantly exposing themselves and their families to HIV/AIDS (WBSAPCS, nd).

AIDS is commonly considered a "disease of women" (Shoepf, 2004). According to Sharma et al. (2001), women are more vulnerable to HIV and data collected by them from antenatal clinics indicated high prevalence of AIDS among women. They also identified working women living in hostels as the most vulnerable section. Being away from home and also having a source of income seems to put one at the high-risk zone for HIV/AIDS contraction. The youth of West Bengal (18-24 years) make up 18% of the population of the state (Registrar General & Census Commissioner, India, 2001). According to Choubey (2007), 35% of AIDS cases have been found to occur among young people in the age group of 18 to 24 years. They also coincide with the most mobile group and often belong to those having "early sexual debut, unsafe sexual practices because of lack of information and low risk perception" (WBSAPCS, nd). Common advice given to women is to be faithful to their partner in order to stay uninfected. However, it is a misleading advice since their partners might already be infected (Shoepf , 2004).

Norr et al. (1996) pointed out many misconceptions that prevail in Botswana regarding HIV/AIDS, especially its symptoms and latent period. Thus it seems significant to examine the knowledge base of the population to be studied, as well as their sources of information about HIV/AIDS. NACO (2008) pointed out that women are more vulnerable to the "infected or affected" - impacts of HIV/AIDS. Women are biologically more exposed to HIV infection than men even in the case of a single act of unprotected sex with a partner, where the male to female transmission has been found to be 2-4 times higher than female to male transmission (NACO, 2008). The biological structure of women has also made them more vulnerable to the disease (NACO, 2008).

Oppong and Kalipeni (2004), considered women among the high risk group because they can infect their children. A pregnant mother suffering from AIDS can infect the child in her womb. However, there has also been evidence to suggest that HIV reduces the woman's ability to conceive (Oppong and Kalipeni, 2004). Women need to be more aware of the causes of spread of the disease, not only to keep themselves protected, but also to control the spread of the virus to their progeny. Women often provide primary health care and motivate healthy behavior at home (Choubey, 2007).

Since the study group represents a significant portion of the population, which is about to, or has just started enjoying liberties, their awareness of the disease and its preventive measures seem to be an important topic of study. Also, this is a study of AIDS risk perception of a group that normally falls under the low risk category of educated people, who are assumed to be aware of the disease and the associated risks.

This study has direct relevance to public health because it aims at reducing HIV infection among female students in Kolkata, West Bengal, India, who constitute the future of the country. These students fall in the reproductive age group of 18–24. This is a cause for concern not only

because of the consequences of the virus/disease on their health and life expectancy but also because these women have the potential to pass on the virus to their issues, the next generation (unless suitable preventive measures are taken). The research promotes healthy behavior among a population potentially at risk of contracting HIV/AIDS. The information to be collected can be used to design HIV prevention interventions that can prolong life expectancy in a culturally appropriate manner.

The study has important public health implications because the information to be collected can be used to design HIV prevention interventions that can reduce HIV transmission in West Bengal and other states of India. From an academic perspective, because few studies have investigated the knowledge and opinions of female students regarding the effectiveness of HIV preventive measures, this study will add a new dimension to HIV/AIDS literature.

Chapter Outline

In the forthcoming chapter, an attempt has been made to outline the geographic relevance of the undertaken research. A broad overview has been provided of the HIV/AIDS scenario in India. An attempt has been made to broadly outline the statewide incidences as well as national response to control spread of the disease/virus. A brief outline has been presented of the life of an Indian woman in the existent cultural setting where her constraints and disadvantages which have increased here level of vulnerability to the disease have been highlighted.

In chapter three a framework for the research to be conducted has been provided. The methods that will be used in analysis have been stated. Information concerning how the data was collected has been presented along with the provision of the respondent profile. The respondent profile gives an idea about the socio-economic and demographic background of the respondents who have been interviewed for the research.

In chapter four, the results obtained from the research have been discussed. Frequency charts, frequency tables, contingency tables, correlation analyses, and regression analyses have been completed in order to come to a definite conclusion highlighting factors that influence the college students' willingness to comply with prescribed preventive measures.

In the last chapter, the results that have been obtained in chapter four have been summarized and discussed along with provision of recommendations for the improvement of awareness campaigns that were organized. In this chapter the few constraints faced by the researcher while conducting research have also been discussed.

CHAPTER 2 - HIV/AIDS in India and West Bengal: A Broad Overview

Geographic Relevance

Geography is a dynamic discipline where the scope and content is increasingly becoming more relevant with the changing times. This ever-widening discipline has been subdivided into several subfields, and health/medical geography is one such subfield. Geographical analyses of HIV/AIDS epidemic began in the mid-1980s, about five years after the first AIDS case was detected (Pyle and Gross, 1997). Initial geographical studies of the epidemic were primarily focused on identification of the different geographies of the disease, including its source and origin, and its spatial and regional patterns of diffusion at different scales (e.g., Casetti and Fan, 1991; Cliff and Smallman-Raynor, 1992; Dutt et al., 1987; Gould 1989 and 1993; Shannon et al., 1991; Shannon and Pyle, 1989; Wood, 1988).

Although early geographical works on HIV/AIDS significantly contributed to our understanding of the spread of the disease in different contexts, a shift of research interests of health/medical geographers has been observed since the mid-1990s. Since then, geographers were more interested in studying the social contexts of HIV/AIDS as well as the linkages between the spaces of health care for people living with HIV/AIDS (PLWHA) (Del Casino, 2001; Kearns, 1996). More broadly, health/medical geographers have directed their attention to examine the social, political, and economic dimensions of health, illness, and health care, as they are constituted in and through place-based social relations (Kearns and Gesler, 1998). This shift corresponds with the emergence of post-medical geography in the mid-1990s.

While people living with HIV/AIDS (PLWHA) have received attention since the mid-1990s, few medical geographers or other researchers are concerned with low risk groups. In this

proposed study, a deviation has been made from the normal mode of study, by focusing on a lower risk group of young women rather than the high-risk group that is normally studied. Here, the reaction of women with regard to the spread of HIV/AIDS and their response to preventive measures based on their environment will be studied. In India, women are generally silent victims to social norms and cannot usually take part in decision making processes. Due to which they have been given exclusive focus in this research. This does not imply men are not at risk. The human environment guiding human thought and perceptions has been given focus, in this study, rather than the physical environment. Such research comes under the realm of post-medical geography and a case study based approach will be adopted.

For a disease like HIV/AIDS, culture may directly or indirectly affect health behavior of individuals. Direct impact of culture includes cultural practices like polygamy that increase the exposure of men/women to the virus. Indirectly culture might affect the way an individual perceives his or her level of vulnerability to the disease as well as their willingness to comply to the preventive measures. Culture is important for a study of this kind as in some cultures women are assigned a position inferior to men and thus increases their level of vulnerability.

According to Bailey and Hutter (2006), culture determines what an individual or a group considers as sensible behavior. Bailey and Hutter (2006) further add that sensible behavior is controlled by norms, beliefs and values that unite the group. People are commonly assumed to rationalize their decisions, judgments and behaviors based on a shared cultural rationality (Bailey and Hutter, 2006). It can be said that culture is a significant contributor to risk perception as it directly and indirectly influences an individual's thought process and thus his or her risk perception. An individual decides on the amount of risk associated with a particular action based on the social environment. Perceived threat is, therefore, commonly related to the amount of caution that society attaches to a particular action (Bailey and Hutter, 2006). Thus the influence

of culture needs to be studied in order to do a complete risk and vulnerability assessment for a disease like HIV/AIDS. As a result this research can be considered to come within the domain of cultural geography.

Society can however mislead the risk perception of an individual by over estimating or under estimating the level of associated risk. Bailey and Hutter (2006) have noted the significant influence of cultural schemes on human behavior patterns based on differential gender roles. They have noted that in Asian countries since society expects women to be accommodative to meet man's expectations, women have limited exercising power with regard to use of contraceptive measures during sexual intercourse (Bailey and Hutter, 2006). Thus it would be an interesting perspective to look at the way women view the power dynamics and their perceived vulnerability. It would be very important for a woman to be well aware of health related issues so that she can make requests to her partner or herself adhere to safe sexual practices. Bailey and Hutter (2006) are of the opinion that Asian and Pacific Highlander women make a sexual risk assessment based on a past history of loyalty of the men. This can be believed to indirectly assess the possible risk of acquiring the virus from their partners. The assessment of faithfulness of men seems to influence whether the women negotiate and ensure that condoms are used during sexual intercourse. (Bailey and Hutter, 2006). Bailey and Hutter (2006) have noted a different kind of assessment of women that men conduct before indulging in high risk behavior.

Men seem to sanitize their sexual encounters with the claim that the women were known to them as though they knew what risky partners looked like (Bailey and Hutter, 2006). Such information highlights the vulnerability of women as their risk assessment is totally reliant on trust. Bailey and Hutter (2006) have illustrated how men think they need to use protection if they are visiting commercial sex workers but consider it safe to practice monogamy with ordinary women. This establishes the notion that noncommercial relations are risk free (Bailey and Hutter,

2006). Women are often led to believe that loyalty to their partners would mean that they are safe from HIV/AIDS. However, if their partners were already infected prior to marriage then unknowingly they often make themselves vulnerable to the disease. The research concentrates on women only and their decision making abilities or behavioral issues that will be studied come under the realm of gender studies and behavioral geography. This study thus connects several subfields of geography that have been highlighted in Figure 2.1.

I am interested in taking into account the cultural aspect, where male dominance has led to healthcare inaccessibility for women in Kolkata. I will be looking into perceptions of college students about the causes of the disease and the level of awareness and effectiveness of the preventive measures. It can be considered a feedback mechanism of the workshops that are held to ensure awareness of the general mass and thus come within healthcare planning and policy making. Due to these reasons I feel that my research lies well within the purview of healthcare geography. Moreover, the health risk perception that will be studied brings the research under the subject of realm of hazard studies. Since the study will concentrate on women and factors affecting decision making it can be considered as a study within population geography and specifically within gender studies. Lastly since culture provides a backdrop for healthcare related decisions this research comes within the domain on cultural geography.

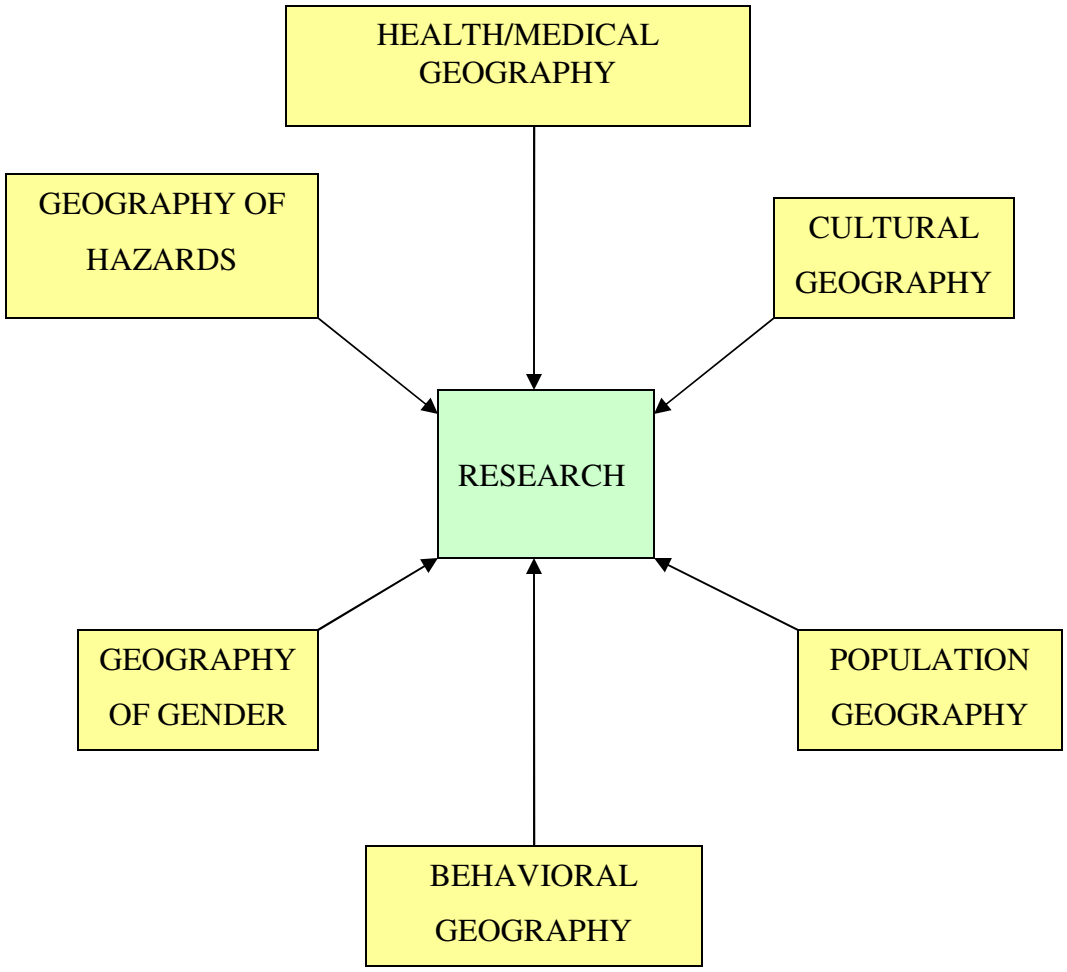

Figure 2.1 The subfields of geography that are connected to this research

According to Shoepf (2004) disease epidemics are social processes and their spread is determined by history, political economy, and culture. AIDS has been considered as an "epidemic of signification" and is often believed to have trickled down from the elite to the poor (Shoepf, 2004). Oppong and Kalipeni (2004, 47) consider AIDS not as one epidemic, but "multiple local and sometimes national epidemics with different characteristics and patterns". Thus a micro-level case study based approach to the study of the disease is just as significant as a

macro-level holistic approach. For the Indian context, the socio economic conditions have created an environment conducive to the spread of the disease (Ghosh et al., 2009).

HIV/AIDS scenario in India

The first case of HIV/AIDS in India was detected in 1990 (Ghosh, 2002). The disease was thus identified late in India as compared to the rest of the world (Adhlakha,1997). There has been an alarming rate of increase in the number of HIV/AIDS cases that have been reported since then. According to NACO (2009) annual report, India had an estimated 1.8–2.9 million HIV positive people in 2007, of which an estimated adult prevalence rate is 0.34%. NACO (2009) places India in the category of concentrated epidemic with respect to HIV/AIDS since there has been observed a high prevalence among high risk groups. World Bank (2006) identified India as one of the South Asian countries with severe HIV/AIDS epidemics. Figure 2.2 below illustrates the estimated adult prevalence of HIV/AIDS between 2002 to 2007 (NACO, 2009). It establishes a gradually stabilizing trend with regard to HIV/AIDS prevalence in India elaborating the possible success of implemented awareness campaigns. The prevalence rate is 0.44% for males and 0.23% for females at the national level (NACO, 2009).

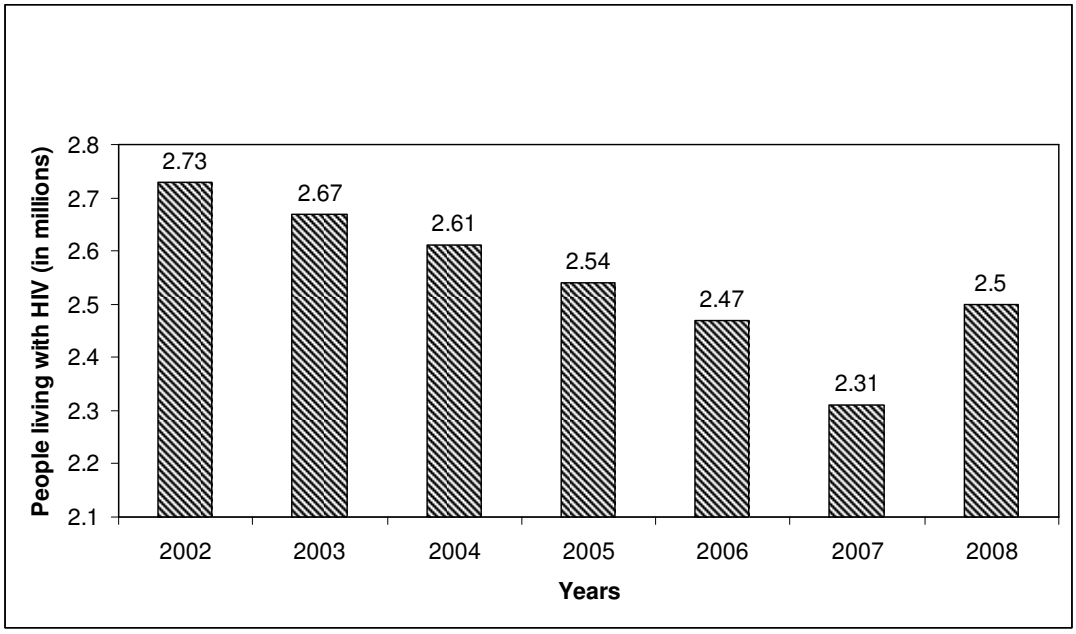

Figure 2.2 Estimated number of people living with HIV/AIDS in India (in millions) from 2002 to 2008

Source : NACO, 2009; AVERT, 2010

Choubey (2007) noted a few characteristics of the HIV/AIDS epidemic relevant to the Indian context. His findings have been listed below:

1. Of the total reported cases of AIDS, more than 35% belong to those in the age group of 18-24 years
2. A major cause for the spread of the virus is unprotected sex
3. The population groups that are most vulnerable to the disease are: unemployed, under employed mobile migrants, youth and street children.
4. Vulnerable groups are often exposed to repeated vulnerability to the virus due to coercion or if their profession requires it of them (eg; sex workers).
5. Most young people become sexually active during their teenage years and are more likely to be experimental with exploring sexual issues and thus engaging in risky

sexual behavior either by having sex with someone in the high risk group or by having multiple partners.

6. Young women and adolescent girls face greater vulnerability since they have less access to relevant information and limited ability to make decisions about their sexual lives
7. In comparison to men, women experience greater comparative poverty while they have less access to employment opportunities often making them open to selecting prostitution as a profession increasing their vulnerability to the infection.

Ghosh (2002) noted that the primary means for the spread of HIV/AIDS in India were heterosexual contact and intravenous drug use. MAP (2005) and World Bank (2006) have both noted the existence of diverse biological, behavioral and structural factors that have contributed towards the heterogeneity in HIV/AIDS transmission in South Asia. In order to arrest the spread of the virus, these organizations have suggested a need for understanding the diverse character of region where the policies are implemented.

Several structural factors have been identified that amplify the HIV vulnerability and risk which include poverty, socio economic inequality, inferior social status of women in comparison to men, trafficking of women as well as a booming sex industry, widespread migration, stigma and cultural obstacles to sexual discussions (World Bank,2006; Ghosh, 2002). The epidemic has been observed to affect demography, health economy and social fabric of developing countries (Newbold, 2002). The demographic impacts of HIV/AIDS include lowering of life expectancy at birth, increasing death rate and rising number of orphans (Ghosh, 2002). The associated economic impacts include rising medical expenses, straining of already fragile healthcare systems, declining quality and quantity of labor, reducing labor supply, declining productivity and waning economic output (Ghosh, 2002; Barnett and Blaikie 1992,

Mann et al., 1992; Bongaarts, 1996). Ghosh (2002) is of the opinion that the low level of economic growth and development contributes towards an increasing vulnerability of people suffering from HIV/AIDS.

The porous regional borders seem to permit large scale national and international migration in India (World Bank , 2006). Cross border trafficking of women for sex work has been considered a major reason for the spread of HIV in the country (World Bank, 2006). This country is one where there is a limited use of a condoms and a high prevalence of sexually transmitted diseases (World Bank, 2006). It is widely accepted that the existence of social stigmas is a major obstacle in the path of successful HIV/AIDS awareness programs (Berger et al., 2001). With reference to India, dealing with the stigma and discrimination of people indulging in high risk behavior and of people living with HIV/AIDS has been considered vital by World Bank (2006) if the spread of the epidemic is to be controlled. In India, AIDS is commonly considered as "someone else's problem" where it is believed to be a disease affecting people living in the margins of society leading immoral lifestyles (AVERT, 2010). Even though the disease has currently spread among the general population the popular mindset is yet to be changed. As a result of this, those suffering from HIV/AIDS face violent attacks, abandonment by family members and community, refusal of medical treatment and denial of last rites before death (AVERT, 2010; UNDP, 2006).

World Bank (2006) further claims that the spread of HIV/AIDS epidemic is not homogeneous and requires well informed, prioritized and effective responses. This organization has identified local concentrated epidemic among intravenous drug users and high risk sexual networks. Even though prevalence rates are high within the network the spread to general population is low unless a large number of men visit the sex workers. World Bank (2006) observed that there is a distinction that needs to be made between serial and concurrent patterns

of sexual relationships which influence the vulnerability of those infected with the virus. A situation where individuals get involved in one sexual relationship at a time is a serial pattern. Here exposure is limited to one partner with acute HIV infection at a time (WHO, 2006). In case of concurrent partnerships however, since the involved participate simultaneously in multiple relationships there is a greater exposure for those involved (WHO, 2006). Similar to concurrent sexual relationships, when IDUs share contaminated needles the risk of transmission increases manifold (World Bank, 2006).

It has been reported that in rural India, truncated epidemics are highly possible where the local HIV transmission is not supported by the existent local sexual structure (World Bank, 2006). For such cases there is a high rate of out migration to urban areas associated with large commercial sex workers. The men who out-migrate are highly vulnerable to contacting HIV since they have a greater propensity to engage in high risk sexual behavior. These men may then infect their sexual partners. Generally, epidemics begin in local high risk groups and then due to indulgence in high risk behavior by the community, the virus spreads beyond the high risk network (World Bank, 2006). Such transmissions are predominant in some localized areas in South India (Andhra Pradesh and Karnataka), West India (Maharashtra), and North East India (Manipur, Mizoram and Nagaland) (World Bank, 2006).

It has been noted that there is a lower prevalence of HIV cases in the rural areas as compared to urban areas. There is a greater exposure to sex workers and IDUs in the cities so this maybe the case. Also since there are more testing sites in urban areas and the cases get recorded there the migratory population may get their temporary urban address recorded rather than their permanent rural address. Figure 2.3 highlights the rural-urban differences in the number of HIV cases.

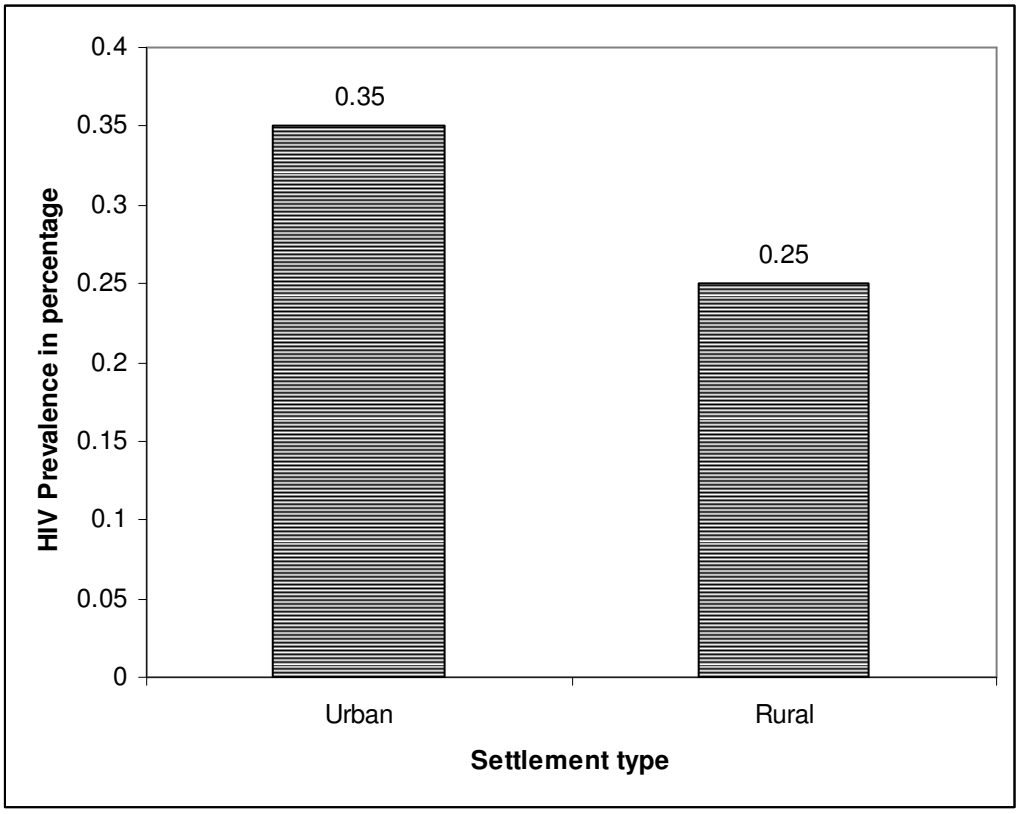

Figure 2.3 A comparative study of rural and urban HIV prevalence for India (2005-2006)
Source: AVERT (2010)

World Bank (2006) has applied a dual approach to HIV prevention for South Asia. Firstly it has introduced effective large scale programs for sex workers and their clients, intravenous drug users, men having sex with men and their partners. Secondly, World Bank acknowledges that support for such programs must include provision of information to the general population regarding how to prevent HIV and to reduce stigma. In order to ensure the success of programs that are implemented to control the transmission of HIV, a proper understanding of both risk and vulnerability is required (World Bank, 2006). Due to the large number of cases with HIV infection and its heterogeneous character, World Bank (2006) recommended that governments and non governmental organizations (NGOs) that take part in program implementation give

importance to the building up of a comprehensive information base. Such an information base could be used to identify the areas deserving special attention and thus help in the implementation of focused prevention programs. World Bank (2006) further suggested that improvements in the scale, coverage, quality and integrity of program required an improvement in the infrastructure.

A multidimensional issue like HIV/AIDS requires a multi sectored approach that has the ability to simultaneously deal with the spread of the disease as well as the socio-economic causes of transmission (World Bank, 2006). The basic rule for implementation of HIV/AIDS transmission prevention policies should be to reach out on a large scale to the maximum number of people who are vulnerable to the disease. With regard to diseases like AIDS, preventive strategies are required to focus on curbing transmission at migration destination points with prevention messages at transits where there are large concentrations of migrant population (World Bank, 2006).

Surveillance and Awareness Generation

In India, HIV/AIDS is primarily transmitted by sexual means as well as through Injecting Drug Users (IDUs) (NACO, 2008 -2009). The spread of the virus has been noted to be concentrated in nature where a high prevalence of the virus has been observed among the population identified as the high risk group.

In 1987, surveillance for HIV / AIDS began in India through 62 public health centers and nine reference centers (WHO, 2006). With the establishment of National AIDS Control Organization (NACO), the network was expanded to include 180 sites most of which involved prenatal patient clinics. In 1999 this network included 77 sites for patients with sexually transmitted diseases (STI) and nine sites for IDUs. A need has been recognized for increasing

the number of surveillance sites (WHO, 2006). By 2009, there were 248 sites for sexually transmitted diseases, 52 sites for injecting drug users, 137 sites for female sex workers and 40 sites for men having sex with men (NACO, 2008-2009).

NACO (2008-2009) places a lot of importance on preventive efforts simultaneously attempting to integrate prevention with care, support and treatment. NACO (2008-2009) has employed a four-fold strategy in order to address issues related to HIV/AIDS prevention:

1. Prevention of new incidences of disease spread among high risk groups and general population through
a. Coverage of high risk groups with targeted interventions till it reaches a level of saturation, and
b. Increasing interventions attempted towards the general population.
2. Provision of greater healthcare, support and treatment to a greater number of people living with HIV/AIDS,
3. Making the infrastructure, systems and human resources involved in prevention, care support and treatment stronger at the district, state and national level, and
4. Intensification of the nationwide strategic information management system.

The primary objective has been to reduce the new incidences of the disease by 60% in the states with high prevalence rates and 40% in the vulnerable states. By March 2009, NACO (2008-2009) has made 1271 Targeted Interventions projects operational under the state managed AIDS Control Societies and 200 more were operated by partners. The operational targeted interventions covered 55% of the female sex workers, 73% of the intravenous drug users and 77% of the homosexual and transgender population (NACO, 2008-2009).

NACO has employed preventive interventions for the general population. As part of such an intervention NACO has worked towards improving communication strategy and initiating a

paradigm shift from awareness generation to making behavioral changes (NACO, 2008-2009). The basic focus was on reduction of stigma and discrimination. A special attention was given to youth and women who have been considered to be highly vulnerable to the disease (NACO, 2008-2009). Various forms of media have been widely used as part of the AIDS awareness campaigns targeting high priority areas.

NACO (2008-2009) is of the opinion that Red Ribbon Express Project is the world's largest mass mobilization campaign on HIV/AIDS. A seven-coach train called the Red Ribbon Express began its journey on the 1st of December, 2007 from Delhi and traveled for a year covering more than 27,000 kms which included 180 stops (NACO, 2008-2009;AVERT nd). The project covered 41,334 villages which included 6.2 million people. This project trained 68,244 people and counseled 116,183 people. The primary motive of this project was to educate people about HIV/AIDS and generate awareness about the disease. After its successful maiden voyage, the train took of for a second time in December 2009. During its second journey the train offered services like counseling and training services, HIV testing, treatment of STDs as well as spreading education and generating awareness (AVERT, nd).

Condom use has been promoted and the female condom program in Andhra Pradesh, Tamil Nadu, Maharashtra and West Bengal was improved in order to increase the available condom supply to female sex workers in the states (NACO, 2008-2009).

Since the virus can spread through infected blood transmission, access to safe blood was ensured by NACO improving a network of 1092 blood banks (includes 104 Blood Component Separation and 10 Model Blood Banks).

The total number of Integrated Counseling and Testing Centers (ICTC) has increased from 62 in 1997 to 982 in 2004 (NACO, 2008-2009). By the end of 2009 there were 5135 ICTCs in India (AVERT,nd). In these centers both counseling and testing facilities were provided to

pregnant women. The number of people who were tested in these centers increased from 4 million in 2006 to 13.4 million in 2009 (AVERT, nd). There are 211 Antiretroviral Therapy Centers operated by NACO that are present in the country.

Trend

NACO (2008–2009) has noted an overall decline in HIV prevalence among Antenatal Clinic (ANC) attendees in the high prevalence states in the south and northeast. A rise in the number of cases among ANC attendees have been noticed in the low and moderate prevalent states of Gujarat, Rajasthan, Orissa and West Bengal. Among the female sex workers a decline has been noted in the South Indian states possibly indicating success of the targeted interventions. However trends of disease spread have been rising among female sex workers in the Northeastern states. Among the intravenous drug users a conducted surveillance by NACO revealed high concentrations in Maharashtra, Manipur, Tamil Nadu, Punjab, Delhi, Chandigarh, Kerala and West Bengal. Trends of the disease among IDUs is reducing in Manipur, Nagaland and Chennai while there has been observed an increasing trend in Meghalaya, Mizoram, West Bengal, Maharashtra, Kerala, Delhi. NACO increased the level of surveillance among MSM group which revealed a high prevalence rate of > 5% in the states of Karnataka, Andhra Pradesh, Manipur, Maharashtra, Delhi, Gujarat, Goa, Orissa, Tamil Nadu and West Bengal.

Figure 2.3 highlights the incidence of HIV cases in the HIV Sentinel Surveillance sites as published by NACO and AVERT (NACO, 2008; AVERT, 2009). It can be observed in Figure 2.4 that the prevalence rates in West Bengal are higher than the average rates for India for female sex workers and intravenous drug users.

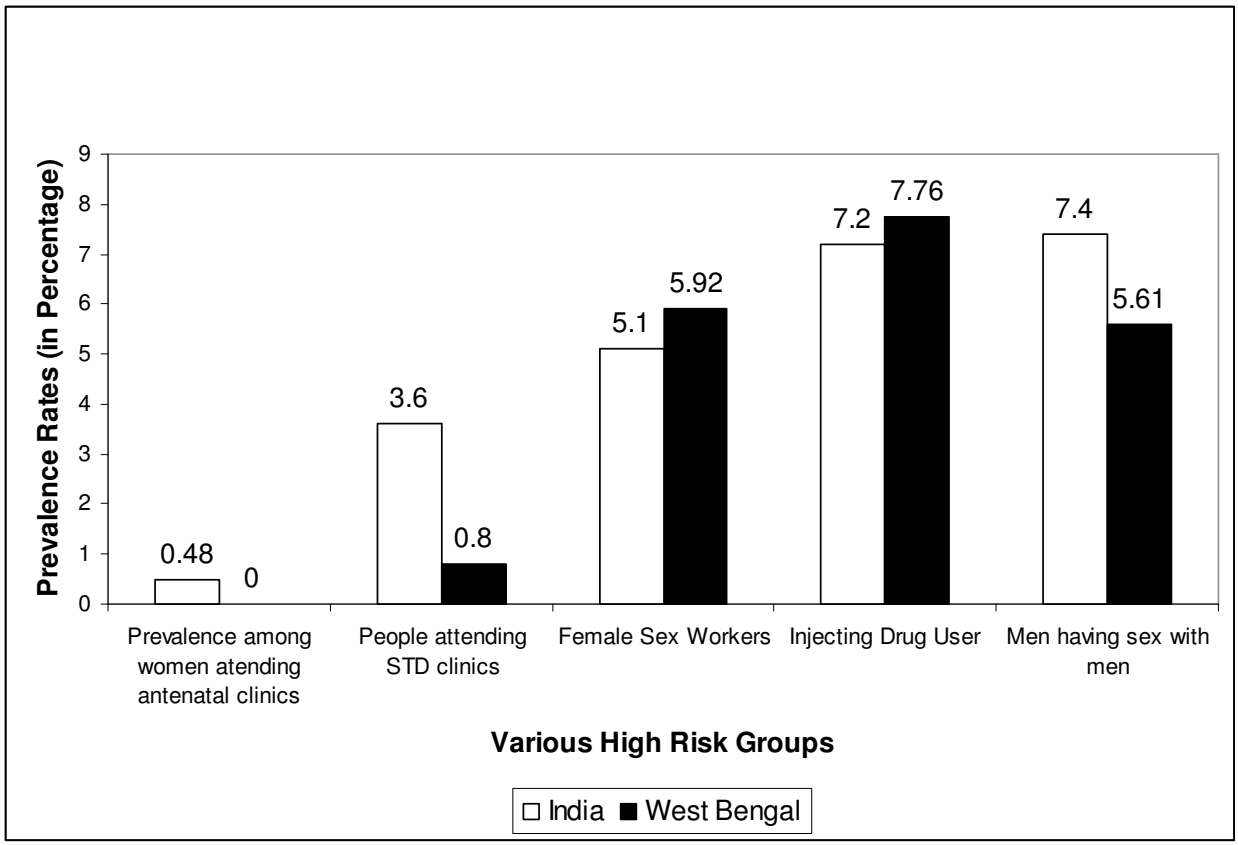

Figure 2.4 Comparative data about HIV prevalence for India and West Bengal, 2007

Source: AVERT (2009)

National Response to HIV/AIDS

National response to HIV/AIDS can be broadly categorized to three parts, they are HIV testing, treatment and prevention. Thus in order to derive a holistic picture of HIV response at the national level, both HIV testing and preventive measures will be considered. In India, like in the rest of the world, HIV/AIDS testing is voluntary with the consent of the person who is being tested for the virus (AVERT, 2010). Indian Government along with NACO has established more than 4817 integrated counseling and testing centers (ICTCs) in India by 2008. IN 1997 there were only 62 such centers. In 2007, 5.9 million people were tested for HIV which is a

phenomenal rise from 0.14 million in 2001 (AVERT, 2010; WHO/UNAIDS/UNICEF, 2009; NACO, 2008 and NACO, 2005).

Antiretroviral drugs (ARVs) which can delay the transition from HIV to AIDS have been available in developed countries from 1996 (AVERT, 2010). However for developing countries like India, access to treatment was severely limited and approximately 235,000 received ARVs by the end of 2008 (WHO/UNAIDS/UNICEF, 2009; AVERT, 2010). The government is working towards improved access to ARVs and in 2007, approximately 137 sites provided ARVs (UNAIDS/WHO, 2009; AVERT, 2010).

The importance of education as a significant preventive measure was recognized at the initial stage of planning a suitable national strategy to fighting the disease. In India educating the citizens about the disease is a difficult chore due to the existence of numerous regional languages and dialects (AVERT, 2010). As a result, even though there were several attempts that were made at the national level, the state and local governments often appeared more successful at spreading relevant information (AVERT, 2010).

The national response to the HIV/AIDS epidemic can be broadly divided into three phases (NACO, 2009). The first phase of National AIDS Control Program (NACP-I) began in 1992. The deadline for the first phase was extended from 1997 to 1999. The main tenets of NACP–I were, strengthening of the management capacity facilitating HIV Control, building of proper infrastructure enhancing surveillance and clinical management capacity, promotion of public awareness of the disease and the virus as well as generating community support, improvement in blood safety and an control and spread of STDs (MSACS, nd)

The second phase of the NACP (NACP-II) which began in April 1999 and lasted till March 2006 had two primary motives (AVERT, 2010; NACO, 2009). They were reduction in the spread of HIV and strengthening the capability of Central and State governments with regard

to HIV/AIDS response in the long term. As part of NACP-II, state AIDS control societies were disbursed funds for organizing youth campaigns, blood safety checks and HIV testing. Public platforms, like concerts, radio dramas, voluntary blood donation camps, television spots with famous television personalities speaking about the disease, have been generously used in order to spread relevant information concerning disease awareness generation. Schools have tried to educate their students about the disease through teachers or peer educators who were trained to speak about the disease (AVERT, 2010).

The third stage of NACP (NACP-III) began in June 2007 and is expected to continue till 2012 (UNAIDS, 2008). Of the budget allocated for the program, approximately two-thirds is for prevention and one-thirds is for treatment (AVERT, 2010; Steinbrook, 2007). Such a budgetary allocation highlights the importance given to prevention at the national level. Apart from national funding for the project, non governmental organizations like World Bank and Bill and Melinda Gates Foundation have provided financial support (AVERT, 2010). In this phase of NACP, condom promotion will be emphasized and already more than 11000 condom vending machines have been installed across the country. Government initiated campaigns with USAID support like "Condom Bindas Bol" involve advertising, public events and celebrity endorsements. An attempt towards removal of existent taboos related to condom usage will also be attempted. (AVERT, 2010).

For a country like India where there is a disparity in attitude shown towards men and women, the status of women and the disease deserves attention. Men in India like in many South Asian countries have an advantageous position. They are the primary bread earners for the family and often women depend on them for the basic means of livelihood. Family owned property is commonly registered in the name of the male family members thus guaranteeing then greater financial security. Men enjoy greater independence since they are the primary decision

makers. It is of great significance since in a family where men are aware of the ill effects of contacting HIV and means of disease prevention, there is a greater probability that they would promote use of condoms in their daily life. The husband may not be open to using condoms if it comes as a suggestion from his wife. Since his wife is dependent on him, she has less power to enforce her decision on him fearing abandonment. It can be mentioned here that in the Indian society men enjoy greater freedom and thus there is a possibility that they may take part in high risk activities and expose their wives and female partners to the virus. Thus even if the women themselves do not visit the high risk groups and are loyal to their husbands, sticking to the single partner norm, they could still be vulnerable to the disease. It is rather interesting to look into the HIV scenario for women in India.

Indian Women and HIV/AIDS

Coovadia and Rollins (2009) have listed several factors that have increased the level of vulnerability of women to HIV/AIDS. Biological factors that increase the level of vulnerability of women are her anatomical, physiological and pathological factors that augment the likelihood of a woman being infected during sexual intercourse (Coovadia and Rollins, 2009). Stigma, discrimination and sexual violence are some of the social factors that have been identified to increase the susceptibility of women to the virus. Poverty, subordinate position of women, emphasis on male directed and controlled preventive measures and limited access to healthcare are some other factors that have been identified by Coovadia and Rollins (2009) that place women at a more disadvantaged position and has increased their likeliness of contacting the disease. In this section the vulnerability of women in the Indian cultural context will be considered in detail.

MacNaughton (2004) noted that two decades ago women were in the periphery of the epidemic but today they globally account for 50% of people affected by HIV/AIDS. South Asia has the second highest number of people living with the disease/virus (MacNaughton, 2004). Presently in South Asia, the number of infected women in 15-24 age group is double the number of men in the same age group (MacNaughton, 2004). Germain and Woods (2005) observed that a reason for increased infection rates among women is that the preventive measures have not focused on women. They further added that the vulnerability of women is magnified by the absence of protective technology that the women can use to avoid exposure to the virus.

The existent high levels of economic and social vulnerability have resulted in greater feminization of HIV/AIDS in India (Ghosh et al., 2009). Women make up 39% of the HIV/AIDS cases which amounts to 1 million of the 2.5 million people suffering from HIV/AIDS (NACO, 2007d; Ghosh et al., 2009). Figure 2.5 illustrates the inter gender differences in prevalence rates in the 15-49 years age group for India (2005-2006).

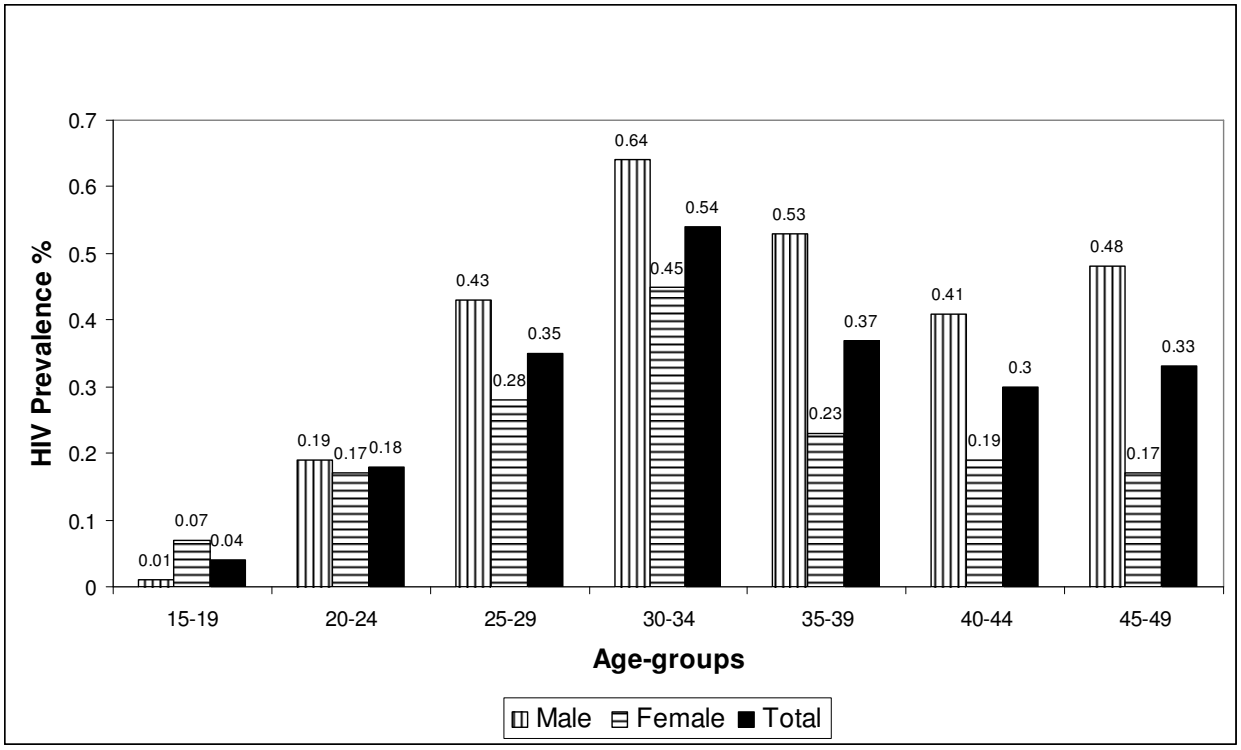

Figure 2.5 Age and gender-wise HIV prevalence for India (2005-2006)

Source : AVERT, 2009

There are various reasons for the vulnerability of women to AIDS much of which can be attributed to their socioeconomic, biological and cultural status. The biological structures of women make them more susceptible to HIV infection in heterosexual encounters (NACO, 2007d). According to Ghosh et al. (2009), the existent taboos and cultural norms like early marriage, lower literacy, lower awareness of sexually related aspects and HIV/AIDS, lower control of economic resources, and lesser decision making ability with regard to reproductive and sexual behavior than men have aggravated the vulnerability of women in India (also see NACO, 2007b; Pradhan and Sundar, 2006 and Williams, 2005). Violence and sexual abuse against women like rape, incest, assault by family members or friends, trafficking are considered to be major reasons that have led to the spread of the disease/virus (NACO, 2007d).

The predominant socioeconomic environment has created an environment of risk for women (Ghosh et al., 2009). Inequality in the power relations and the differences in the socio economic entitlements between men and women have resulted in vulnerability of women in the developing world (Ghosh et al., 2009; Oppong, 1998). An important obstacle in the path of HIV/AIDS awareness is reluctance of women to discuss issues of sexuality. AIDS is commonly considered a taboo topic. Ghosh et al. (2009) are of the opinion that the existent taboo presents a great hurdle towards acquiring complete and accurate information leaving many women exposed to such a disease which can be controlled by precautionary and preventive measures. Ghosh et al. (2009) have noted in their interviews that inspite of the presence of billboards the social norms regarding appropriate behavior often stop young women from availing of available information on HIV prevention measures.

Ghuman (2003) defines autonomy as a woman's ability to make and execute decisions concerning her personal matters that are significant to her. Autonomy is dependent on power, access to information, control over material resources and freedom from violence that was inflicted upon women by men (Ghuman, 2003). Female autonomy plays a significant role in determining freedom of expression, communication, decision making abilities and actions (Ghosh et al., 2009). Ghosh et al. (2009) believe that men often intrude upon physical and expressive space of the women reducing their access to information and discouraging discussions. This discomfort is often felt by women in the absence of men. They do not feel free to discuss such topics in the presence of elderly women and mother-in-laws (Ghosh et al., 2009).

Ghuman (2003) is of the opinion that control over an independent income is important for empowering women. It is also important for children's welfare as mothers' often spent a greater proportion of their income on the health and wellbeing of their children than their fathers (Ghuman, 2003). In India it has been noted that Muslim women have a lower level of

employment than non Muslim women (Ghuman, 2003). Hepburn and Simon (2006) noted that Indian women make up only 25% of the workforce and earn 40% less than their male counterparts.

Ghosh et al. (2009) have pointed out that early marriage, which is predominant in the Indian society, affects the level of economic and social autonomy thus often placing women at greater risk for reproductive health issues. The rules on healthcare and childbearing are often governed by the level of autonomy. The rules concerning childbearing are again commonly governed by the social preference for male child (Ghosh et al., 2009: Jejeebhoy and Sathar, 2001; NACO, 2007b). The wish for the male child often determines family size. Early marriage leads to greater vulnerability of women to AIDS since for women who practice monogamy, marriage is the primary reason for them to be exposed to HIV/AIDS (Ghosh et al., 2009; Verma and Roy, 2002).

In India, girls are expected to be sexually innocent and to preserve their virginity till marriage while men are supposed to be sexually knowledgeable and experienced (MacNaughton, 2004). Commonly female ignorance in sexual matters is considered a sign of purity. As a result women feel discouraged to learn about sex and reproduction. MacNaughton (2004) mentions that it is a common belief among women and girls that seeking information pertaining to sex and reproduction would make their being a virgin appear questionable. As a result women are often poorly informed about their bodies, pregnancy, contraception or sexually transmitted diseases (MacNaughton, 2004).

Normally a direct correlation is found between formal education and awareness of HIV/AIDS preventive measures (Ghosh et al., 2009; Abraham, 2002; Pradhan and Sundar, 2006). This maybe the general consensus but Ghosh et al. (2009) found in their research that a third of the people they surveyed showed a mismatch between the level of education and

knowledge about HIV/AIDS. They have further noticed that some less educated women have working knowledge of HIV/AIDS since they had benefited from AIDS Awareness Campaigns. Some better educated women were found to be less informed (Ghosh et al., 2009). Coovadia and Rollins (2009) have noted that education plays a role in accessing information that prevents HIV prevalence but knowledge does not assure choice and autonomy.

Ghosh et al. (2009) have inferred that secondary level educated women had a more positive attitude towards people living with HIV and AIDS (PLWHA) since they had a greater understanding of the dynamics of HIV/AIDS. Of the media related methods of AIDS awareness propagation education plays a significant role. This is because only educated women would be able to read and make sense of the news articles and posters used profusely in the awareness generation campaigns (Ghosh et al., 2009). The clinical language used was however not well understood by many. Ghosh et al. (2009) further added that due to the existent taboos many women did not want to be caught reading HIV/AIDS literature. The existent social norm that women are not expected to be aware of sexual issues acts as a barrier to the spread of knowledge (NACO, 2007b).

For a behavior related disease like AIDS, awareness of the disease is a significant step towards disease prevention. Ghosh et al. (2009) noted that health personnel and service messages in charge of spreading pertinent information were inaccurate, incomplete and inadequate. They have mentioned an instance where the interviewed felt that a casual touch could led to the spread of the virus. An interesting point that came out of the research done by Ghosh et al. (2009) is that while many women were aware that the disease spread through sexual contact, they did not consider themselves or other married monogamous women to be at high risk. It was interesting since many were aware that there were some women who had contacted the disease from their

husbands. Misconceptions about the disease have been noted to be predominant especially concerning casual touch and the role of mosquitoes in spreading the disease (Ghosh et al., 2009).

Ghosh et al. (2009) have concluded from their research that media campaigns (specially television) and government funded advertisement campaigns have significantly contributed towards propagating relevant information among women. Many have further pointed out that the culturally friendly teachings in the AIDS awareness campaigns like fidelity and abstinence have been well accepted by women. Since the Indian culture does not support multiple sexual relationships or visiting commercial sex workers, the view that they lead to greater risk of AIDS has been well accepted. However the concept of practicing safe sex is obscure. Ghosh et al. (2009) felt that the role of condoms in AIDS prevention is not well understood which acts as a barrier to their use. Often the concepts of AIDS prevention and family planning are confused making many women feel that contraceptive use will lead to AIDS prevention (Ghosh et al., 2009).

Attitude shown towards PLWHAs is significant as discrimination of those suffering from the disease increases their vulnerability (Ghosh et al., 2009). In India however the predominance of greater importance given to marriage over education can be considered an issue of concern. Ghosh et al.(2009) have noted an interesting characteristic trait of educated women in India. Women who have a higher level of education than their husband tend to underplay their level of education projecting that their husbands were the primary decision makers in the family. Such an attitude tends to limit the level of autonomy of women even though they may have a high level of education.

Economic and legal inequalities that exist add to the level of vulnerability of women (MacNaughton, 2004). Discriminatory laws and economic policies often prevent women from gaining access to resources like land, property, credit, employment and education multiplying

their level of helplessness. Financially independent women have greater say in matters concerning adoption of positive health behavior (MacNaughton, 2004). Due to the existence of patrilineal organizations of inheritance, women often lose their properties and associated livelihood after the death of their spouses. Poor women often join the flesh trade for the sustenance of their family (MacNaughton, 2004). MacNaughton (2004) has noted that women and girls barter sex for employment, promotion, school fees and marks.

A disadvantageous position of women limits their autonomy and poverty adversely affects their economic empowerment increasing their dependence on their spouses (Ghosh et al., 2009). Since women depend on their spouses for money, it reduces their power to take decisions thus reducing their choices with regard to sexual issues which often gets reinforced by the existent societal norms (Ghosh et al., 2009, Ghosh and Olson, 2007; Verma and Roy, 2002; Williams, 2005).

Also, women have to often take parental or spousal permission before attending workshops for awareness generation campaigns as well as testing centers and thus even though they maybe eager to know more about the disease their ability to gain information might be limited. Visits to doctors are also controlled by the adults in the family and/or spouse and so women need permission to visit the doctors. If the level of funds available in the family is scarce then a woman's access to medical help becomes limited as most family funds are commonly utilized for the men in the house who are the primary bread earners. Since it is not common for women to visit the doctor on her own, it maybe difficult for her to openly discuss confidential health related issues with her doctor for lack of privacy.

Coovadia and Rollins (2009) have noted that shame, stigma and discrimination discourage women from protecting themselves if uninfected or seeking help and support if they are infected. MacNaughton (2004) has observed that within families, the female members with

HIV/AIDS face greater intolerance than men with the same disease. Fear of being victimized or deserted by the family often forces the women to keep their being HIV positive a secret (MacNaughton, 2004). Women are often blamed by their in-laws if the husband is tested positive for the virus. In cases where the husband visited prostitutes, the wife is blamed for not being able to satisfy her husband's wants (MacNaughton, 2004). Denial of right to husband's property by his family and low quality of nutrition and care available to widows is a common practice in India (MacNaughton, 2004).

Since a woman maybe financially dependent on her husband, such abandonment greatly increases her vulnerability as not even her parents would be willing to give her shelter fearing societal ostracism. For married men in comparison, the scenario is better, as he may still expect his wife to care for him and since he is often the chief earner for the family, the property is usually in his name so even if his family abandons him he has a better chance to financially take care of himself.

MacNaughton (2004) is of the opinion that even when informed about HIV transmission, women may not change their behavior since the social expectation from women is that they should please men. As a result, women commonly give up their authority in sexual matters. It has been observed that in their drive to please men, women often indulge in sexual relationships being fully aware of the associated risks (MacNaughton, 2004). MacNaughton (2004) noted that in many cultures, since men make the sexual decisions, if he initiates sex women cannot refuse him. Due to this, well informed married women are unable to negotiate safer sex with their partners.

According to MacNaughton (2004), violence against women increases their vulnerability to the disease. Fear of violence often stops women from discussing with their partners and influencing a decision towards safer sexual relationship. MacNaughton (2004) in his research

interviewed women in India who confirmed that their husbands forced them to take part in unsafe sexual behavior even though they were aware of the husbands' HIV positive status. It has been pointed out that forced marriages specially those that take place at an early age and issues concerning wife inheritance puts women at a more vulnerable situation. Sexual abuse of young girls, domestic violence, forced marriage, and rape have been considered as cultural standards of sexual intimidation and violence against women and in such cases safe sexual practices are unrealistic for women (MacNaughton, 2004).

It has been observed that women also face discrimination with regard to access to treatment including denial of treatment, testing without consent as well as violation of privacy (MacNaughton, 2004). Pregnant women are often tested for the virus without their notion or permission. Spouses of HIV positive men are commonly advised to get tested or are forcefully tested without their permission (MacNaughton, 2004). Prior to surgery, patients suspected based on their physical appearance, are compulsorily tested for HIV without seeking permission from the patient or provision of associated counseling. Confidentiality breaches by hospital staff is also a common occurrence. HIV-test results are often revealed to family members or friends accompanying the patient or healthcare personnel who are not directly involved in the care (MacNaughton, 2004). In a survey that was conducted MacNaughton (2004) observed that 29% of the people living with HIV/AIDS in India mentioned that their test results had been revealed to someone else without their consent. In case of women and particularly pregnant women the code of confidentiality was commonly completely disregarded (MacNaughton, 2004). Due to the existing discrimination against women such a breach of confidentiality can be really harmful to the affected. Women are commonly assigned the role of caregivers who are expected to look after the ill or the orphaned (MacNaughton, 2004). It has been pointed out that the burden of care giving has a significant impact on the psychology of the women.

Jurich et al. (1992) have noted that women have a greater natural tendency to avoid risk than men. Females have been found to readily reduce their number of sexual partners if they are aware that it involves health risk. It has also been found that in USA, women were more open about asking questions about the relationship history of men they are in relationship with (Jurich et al., 1992). However, as mentioned before, for a culture like in India, where communication about sex is a taboo a woman often does not feel comfortable to talk to her partner about such issues. In some cases such conversations are even not permissible. Thus it can be added here that situations for women in India is far different from the situations of women in the developed Western world.

Thus, from several aspects both directly and indirectly it is significant to evaluate the situation for women. Being in a inferior position with regards to decision making abilities and healthcare accessibility is a tough position for women. Women need access to information as not only do they have to keep themselves protected but they have to take care of their family members as well. As a result it is important to look into the factors that determine healthcare related decisions of women. The following chapter analyses in detail the characteristics of the respondents as well as provides a glimpse of the research framework.

CHAPTER 3 – Methodological Consideration

This chapter will form a preclude to the research analysis. In this section the basic idea behind the research will be discussed. This chapter will also provide information on how the data pertaining to the research was collected and analyzed. An attempt will be made to provide a respondent profile where the characteristics of the respondents will be revealed. The basic assumption is that the respondent background influences their behavior and attitudes. Here it can be added that the immediate environment of the respondents can influence their perceived vulnerability to the disease and thus influence their eagerness to employ positive health behavior. Later in this study, an attempt will be made to study if possible correlations exist between environment and behavior. Knowledge of their background might enable us to understand their perception. It is often believed that factors like age, income and religion might determine the way the respondents view their surroundings and perceive their level of vulnerability to the disease and virus. Thus, within this section, the respondent profile for age, income, religion, employment status, attendance in workshops and power to make decisions will be considered.

Relevant Models

This section presents two relevant models, which will form the basis for conceptualizing the key issues identified in this study and provide major guidelines in conducting the proposed research. The models that will be used for this research are the Health Belief Model (HBM) and Social Learning Theory (SLT). These models help explain the preventive health behavior among individuals, and attempt to understand, elucidate, and predict health behaviors of people. These models have facilitated the selection of determinants influencing compliance to the recommended preventive measures of HIV/AIDS. Change in health related behavior is a result of

simultaneous action of several socio-cultural, demographic, economic, and psychological factors, such as pre-existing knowledge about the cause of illness, perceived vulnerability to it, severity of the disease, as well as perceived benefits from adopting preventive measures.

Health Belief Model (HBM)

Bailey and Hutter (2006) noted that behavior change models like Health Belief Model state that unsafe sexual behaviors reflect risk assessments and a change in risk assessments can lead to a change in health behavior. According to Stroebe and deWit (1996) the HBM was developed by social psychologists in an attempt to understand why people failed to make use of disease prevention or screening tests that enabled early detection of diseases that did not have clearly identifiable symptoms. HBM is used to understand both long and short-term health behavior (Hochbaum, 1958; Conner and Norman, 1996). Sagrestano et al. (2007) were of the opinion that the model was developed based on the belief that there is a direct connection between demographic characteristics and risk reduction behavior.

HBM uses the desire to avoid a negative health consequence as the prime motivation to take positive health actions. The model is based on the conviction that a person will take health related action if he or she a) feels that a negative health condition can be avoided; b) has a positive expectation that by taking a recommended action a negative health condition can be avoided; c) believes that recommended health action can be successfully employed (Becker, 1974; Rosenstock, 1990). The HBM is a framework for motivating people and uses desire to avoid a negative health consequence as the prime motivation. For example considering HIV/AIDS is a negative health consequence, the desire to avoid the infection can be used to motivate people into practicing safe sex.

Stroebe and de Wit (1996) noted that health related behavior is determined by four health beliefs. They are: perceived susceptibility, perceived severity, perceived benefits and perceived barriers (Stroebe and de Wit, 1996). Perceived susceptibility implies the risk of acquiring a disease if no preventive measures are taken (Stroebe and deWit, 1996). Perceived severity involves the perceived significance of the physical (e.g.: death and pain) and/or social (eg; possibility of infecting others and inability to work) consequences of contacting the disease (Stroebe and de Wit, 1996). The degree to which an applied preventive behavior is perceived to reduce the susceptibility or severity of a particular disease is included within perceived benefits (Stroebe and de Wit, 1996). The negative aspects that are associated with the adoption of a particular health behavior that may discourage an individual from continuing the behavior is called perceived barrier (Stroebe and de Wit, 1996). Perceived barriers include financial costs, associated side effects as well as effort required to employ the preventive measure. Stroebe and de Wit (1996) noted that either internal or external cue is required for an individual to employ any action.

Various illustrations of HBM exist that are available with a similar basic framework. Figure 3.1 illustrates a modified version of the HBM. It has been modified from the version proposed by Stroebe and de Wit (1996) to include characteristics influencing perception as suggested by Bowes (1997). Human perceptions are highly reliant on their demographic and socio psychological characteristics and thus it would be incorrect to consider perceptions without considering those variables which include age, sex, race and ethnicity (Bowes, 1997). Also cues to action have been illustrated in the model as Stroebe, deWit and Bowes all took it into consideration and Bowes illustrated it in the model (Stroebe and de Wit, 1996 and Bowes, 1997).

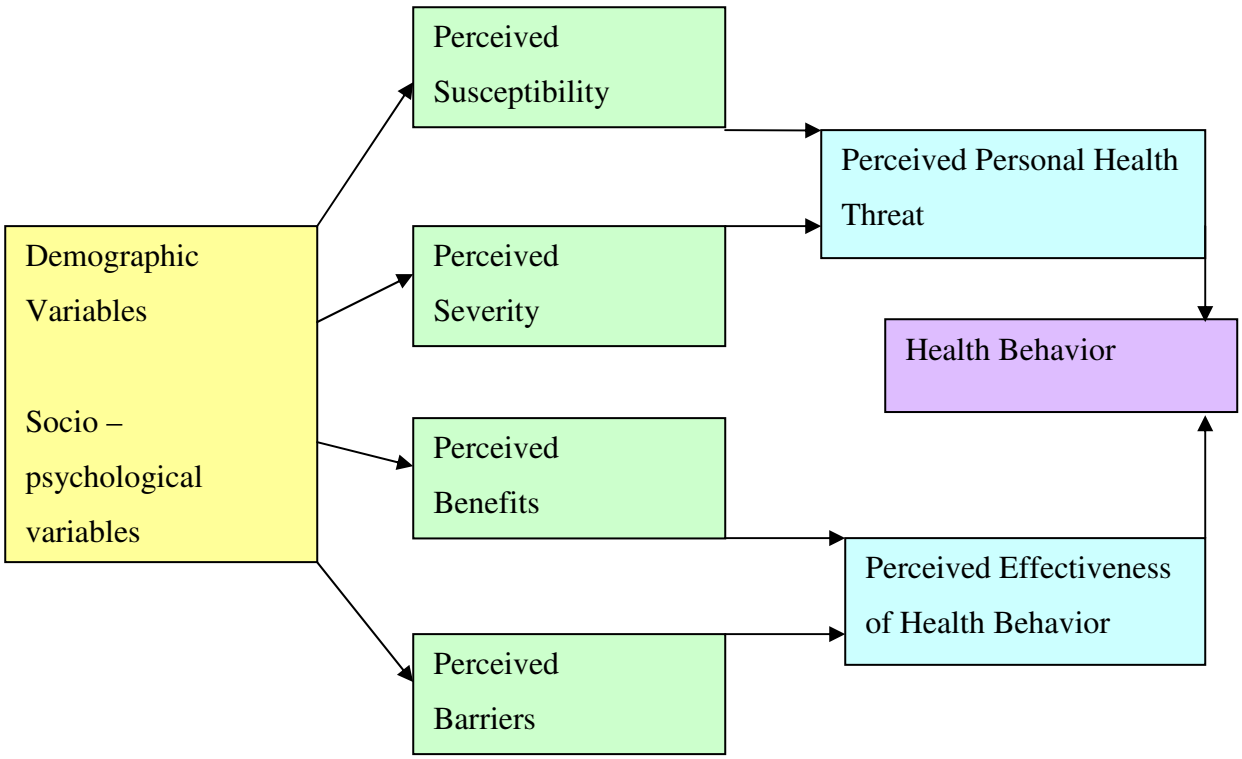

Figure 3.1 Basic concept behind the Health Belief Model (modified from Stroebe and deWit, 1996)

As illustrated in Figure 3.1, perceived susceptibility and perceived severity influence an individual's belief in the amount of personal threat from a disease (Stroebe and de Wit, 1996). Perceived effectiveness from a health related preventive measure is the difference between perceived benefits and perceived barriers. If the perceived benefits are more than the perceived barriers or if the perceived barriers are less threatening than the perceived benefits then the individual has a greater chance of adopting a health behavior. This is because in a scenario like this, the individual thinks the perceived benefits have a higher degree of effectiveness.

Jurich et al. (1992) noted that an expansion in the concept of HBM existed where it was hypothesized that individuals can be motivated to initiate changes in their health related behaviors if they:

1. Perceived severity of the disease

2. Perceived their own vulnerability to the disease
3. Perceived the advantages of initiating a change in their behavior
4. Perceived that there were fewer obstacles in their path of behavior change
5. Had faith in their self efficacy to initiate behavioral change

Self efficacy is reliant on the concept that an individual has the ability to induce change (Jurich et al., 1992). Four factors have been found that significantly affect AIDS, which prompted changes in sexual behavior among college students. These factors are: assertiveness, identity, sexual communication and birth control practices (Jurich et al., 1992). Jurich et al. (1992) did note that assertiveness was an important factor that controlled employment of preventive measures like use of condoms. In such a case an acknowledgement of sexual activity is required along with planning for the specific action with a partner (Jurich et al., 1992). It has been noted that communication between partners increases the level of comfort required to employ positive health behavior (Jurich et al., 1992). A significant fact has evolved from an analysis based on HBM conducted of schools in American Midwest by Jurich et al. (1992). Students who came from families that gave them a structured guidance along with the permission to independently take their own decisions have shown greater self efficacy than those who come from families providing them no guidelines or those who come from families that autocratically try to control their behavior.

Oliver and Berger (1979), however, noted a serous drawback of the HBM. They noted that HBM is a collection of variables rather than a formal theory or model. Due to this reason HBM is difficult to measure. Oliver and Berger (1979) concluded that because of this, identical concepts are used differently in different studies even if the same disease is under consideration.

Social Learning Theory (SLT)

SLT is used for studying psychological factors involved with the adoption of innovations and asserts that individuals define innovations such as new practices in the context of their experiences and formulate attitudes that affect their future behavior (Bandura, 1977). Possible impacts of undertaking a certain action are evaluated based on costs and benefits associated with the adoption. Here, the person involved, weighs the costs that will be incurred as well as the involved benefits before the specific innovation is accepted (Figure 3.2). If the associated costs are higher than the benefits resulting from adoption of the method, the individual has a greater chance of not adopting the precautionary measure under consideration. However if the associated costs are lower than the benefits that can be attained by employing the precautionary measure, there is a greater chance that the individual will adopt the method (Figure 3.2). Thus it can be concluded that if an innovation generates benefits in excess of costs, then attitudes towards the innovation will be positive. Thus development of positive attitude is considered conducive to the adoption of recommended preventive measures. In the context of HIV/AIDS spread, a necessary condition to ensure compliance to the safe health practices is the development of favorable attitudes towards such practices.

It is a widely accepted concept that people are more open to complying with safe health practices when the practices are not in conflict with the existent local customs and produce tangible benefits. Prior experience with the innovation from someone known by the potential adopter, or from media also influences the decision making process. Pierre Bourdieu described the nonfinancial elements as social capital, which are nothing but the resources derived through one's social network (Bourdieu, 1985; Cordasco, 2006). According to this construct individual decision is often influenced by community decision. It affirms that individuals rely on their networks for information rather than listening to external sources like government or other

authority figures. A positive recommendation often implies a greater chance of adoption of the technique (Figure 3.2).

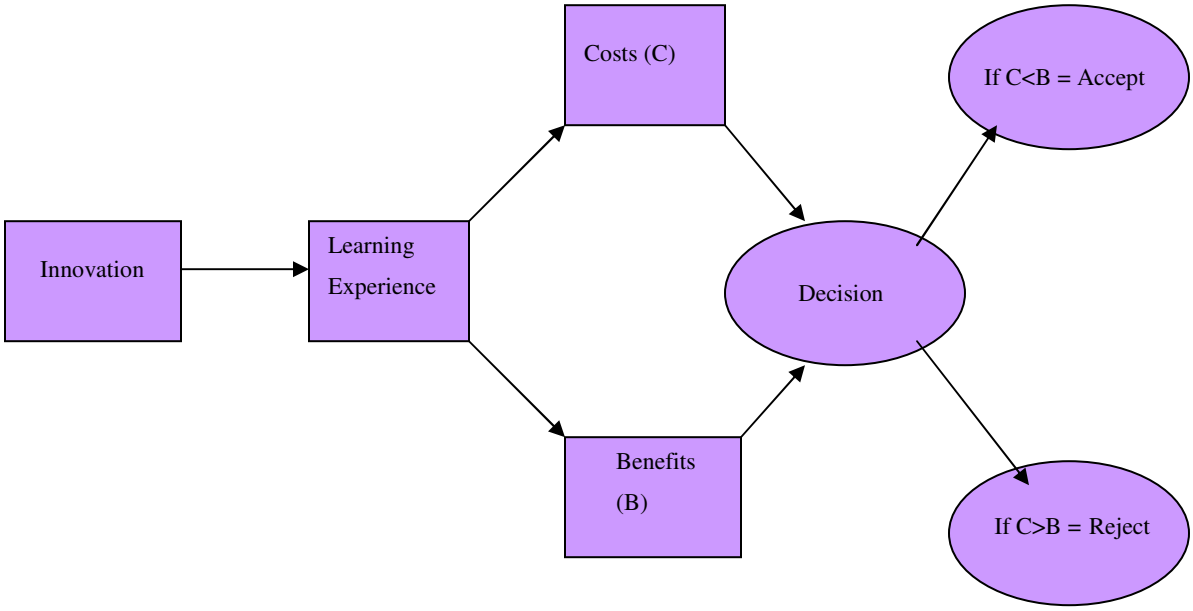

Figure 3.2 Social Learning Theory

Research Methods

Subject Selection

The target population of this study consists of the female students studying in colleges in Kolkata and within the age group of 18 and 24, inclusive. A comprehensive list of all colleges located in Kolkata has been compiled and from this list an appropriate number of educational institutions was chosen for research purposes based on the willingness of the college authorities in letting me conduct research in the college premises. Considering the nature of the subject matter under consideration and virtual absence of relevant information for the target population,

it is difficult to determine sample size with a statistical confidence limit. However, a sample size of 354 has been made use of in order to accomplish objectives of this research.

The colleges in which the research has been conducted are: Lady Brabourne College, Loreto College, South City College, Presidency College and Jadavpur University. Since speaking about the disease is a taboo the respondents were selected based on their choice and willingness to respond. In order to ensure that the respondents in the Indian cultural environment felt comfortable about revealing their true beliefs and thoughts, the questionnaires were left anonymous. Figure 3.3 shows the location of the colleges.

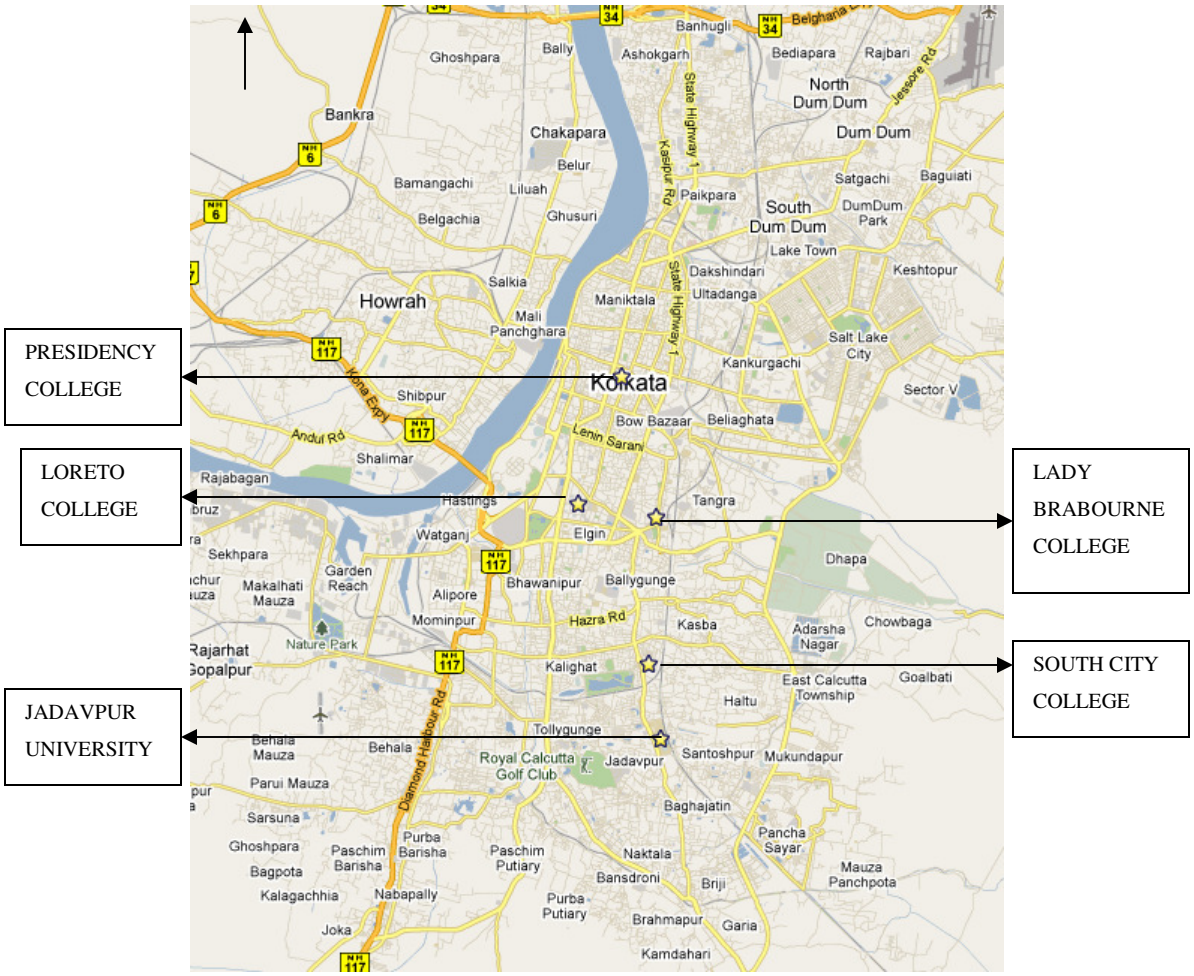

Figure 3.3 A map of Kolkata with the location of the selected colleges

Source: Google Maps (The map is not to scale)

Several doctors, medical practitioners and college principals have also been interviewed in order to gain a complete perspective on the approach towards AIDS awareness in educational institutes as well as the care provided to those who are detected HIV positive. Some HIV positive patients have also been surveyed in order to gain knowledge of the hardships faced by them as well as get a glimpse of the way in which they contacted the disease. An attempt was undertaken to understand if the AIDS preventive techniques were available to them also were they aware of the means by which they could prevent the disease.

Sources of Data

This research has considered relevant components or methodology of the Global Program on AIDS of the WHO. This program developed a model survey instrument in order to collect information on knowledge, attitude, behavior and practice (KABP) about AIDS from different countries in the world (Islam et al., 1992; Chliautakis et al., 1993; Schopper et al., 1993; Norr et al., 1996; Al-Owaish et al., 1999; NIPORT et al., 2005). Cross-national and cross-cultural analyses of AIDS/KABP surveys clearly suggest that attitudes towards adoption of preventive measures are associated with the extent of HIV/AIDS knowledge and awareness. This study has attempted to address the spread of HIV infection in a comprehensive way so that it can provide valuable input to the ongoing efforts to prevent untimely deaths of millions.

This study employed a combination of both qualitative and quantitative methods in order to collect and analyze field data. The primary source of data was questionnaire survey, which were administered among students attending schools and colleges in Kolkata. In-depth interviews have been believed to be an efficient means for capturing the erroneous beliefs and gaps in knowledge that might exist (Norr et al., 1996). Qualitative methods such as informal discussions with key personnel and survey respondents were also employed to collect relevant information. Related reports and documents published by the government and NGOs involved in

HIV prevention programs have also been used to aid understanding of the policies and aims of the workshops.

A structured questionnaire was developed and completed through personal interviews with respondents (Appendix-A). This questionnaire included four broad sections: a) a section to obtain respondent socio-demographic data; b) a section to gauge respondent knowledge concerning HIV transmission and prevention; c) a section to record respondent beliefs regarding the effectiveness of recommended measures; and d) the last section was included to gauge the respondent willingness to comply with HIV prevention measures. The questionnaire survey was conducted in English. The questionnaire was approved by the Kansas State University Institutional Review Board (IRB). The respondents had been requested to complete the questionnaire themselves. The questionnaire was pre-tested on students in the same age group and same cultural background to ensure that the surveyed students were able to comprehend the questions that were asked and did not find the language used in the questionnaire offensive. The students were interviewed during the months of July and August in 2008.

In order to obtain a more complete picture of the HIV prevention measures in the selected groups, discussions were held with students and they were encouraged to participate in these discussions. Three meetings were held with physicians to ascertain their opinion of the implemented AIDS preventive measures and their effectiveness. Two meetings were held with college principals and two meetings were held with HIV positive patients. These meetings allowed issues raised in the individual interviews to be clarified and enabled substantiation of information obtained from other sources. These meetings generated 'rich details of complex experiences and reasoning behind actions, beliefs, perceptions and attitudes' of the participants (Carey, 1995). I have conducted the questionnaire surveys and discussions myself.

Qualitative methods were used to ensure that I can get a holistic picture and have been used to substantiate information collected based on the questionnaire survey. I have selected the topic because I am well acquainted with the cultural background of the subjects and I thought that I would be able to use reflexivity, as suggested by Pini (2004) in data collection. Pini (2004) noted that her having a common background with her subjects helped them open up to her. Again my topic of research deals with perceptions of students and I thought it would be incorrect to completely dehumanize them and collect data without being able to listen to their unique views. Also for such a topic involving women and decision making it is important to understand power relations in the society. In certain cases a close ended question like "Can you take part in decision making?" would suffice. However it was important for me to gain a deeper understanding by following up with a question like "Why?". Such follow up questions had to have open ended options. Also qualitative analysis enabled me to discover answers that I had not anticipated.

For something as complicated as risk perception making a close ended questionnaire is a difficult task as it can never ensure that all possible responses have been recorded as options. I have also taken part in discussions with some of the interviewed people also with parents of students in the study group, college professors and doctors to ensure that I can get a complete feel for the background created for their perceptions.

Discussions were of a more informal nature and consisted of open ended questions that were guided by the close ended questionnaire used for the initial data collection. I feel perceptions and their environment and background have a cause and effect relationship and while I can get a feel of their perceptions using quantitative methods, a proper understanding of their background can be possible only by conversing with them and employing the qualitative technique of participatory response analysis by means of focus group discussions. I also feel that

if the respondents think I am one of them it might enable them to open up to me more and be forthcoming with their answers. My similar background and gender may thus help me in my research. Also in the group discussions with the students I think an open discussion on the topic has lead to mutual gain of information and thus had an educational aspect to it involving mutual exchange of information.

In case of such discussions I have seen that participants realize that they are not alone in facing the problem they face and thus go back feeling stronger and with a more positive outlook. Thus I felt discussions have a positive effect on the subjects while providing valuable information to the researcher. I was also asked by a reputed college to give a talk on AIDS aiming to educate the students of the disease. It was a good experience as it enabled me to have an interactive session with all students including those who were unwilling to fill up the questionnaires. I was thus able to gain a deeper understanding of the way students perceived the disease and their level of vulnerability to it. I did however ensure that the talk was scheduled after I had my data in order to ensure that the respondent views were not biased based on my talk. Since I am a female and also was a student of one of the colleges I visited, the students could relate to me and were forthcoming with questions which they mentioned they were unable to ask others. In these sessions, students also came up with constructive ways in which AIDS awareness workshops can be improved to help students better.

Since I am dealing with AIDS risk perceptions of college students I think it was a challenge to ensure that my research was free of bias if only qualitative methods were used. Thus I have decided use statistical techniques to analyze my data and then use qualitative methods to help explain the responses concluded from the quantitative analysis. The quantitative portion of analysis will thus ensure that the perceptions of the students are conveyed in an unbiased manner

while the qualitative portion will try to seek explanations to the student responses in the quantitative section and thus ensure a complete holistic picture.

I have tried to ensure that the discussion sessions correctly represent the views of the participants do not get influenced by my personal bias or misinterpretations of responses of participants. In order to achieve this goal, I have tried to have at least another person write down the response to the questions and later collate the responses to ensure they are value free. Also to ensure that I do not misunderstand responses I have tried to meet the doctors and principals who were interviewed twice so that in the second meeting I could have my doubts clarified. I have also collected the e-mail addresses of the doctors and college principals in the discussions and sent them a copy of the minutes of the discussion so that they can point out to me any misrepresentation of facts that I may have done. The HIV patients did not have e-mail addresses so there was no way for me to get back to them. The students did not want to provide an e-mail address since they perceived that in such a case their identity had a possibility of being revealed.

The copies I sent them had provisions for them to record any after thoughts from the discussions that they may have had. In this manner I hoped to be able to collect additional information from them on topics that may not have come up during the group discussions yet they want to share with me. I have tried my best to ensure that my experiences did not reflect in the research, however, I do admit it will be difficult yet not impossible to attain. I do believe that my acquaintance with the culture has helped me understand them better and reduce possibilities of misunderstandings.

Data Analysis

Data analysis was performed using Statistical Analysis System (SAS), Statistical Package for Software Programs (SPSS) and John's Macintosh Project (JMP) procedures. Descriptive statistics along with tables and graphs were utilized to summarize field data. Frequency distribution tables and contingency tables will be made use of for the purpose of analysis. Chi-square tests of association have been used to determine relationship between respondent characteristics and their responses.

Correlation analyses were done in order to understand whether any relation exists between the variables. According to Wong and Lee (2005), correlation will facilitate in understanding the direction and the strength of relationship between two variables for all the observations. It will thus enable us to find out the statistically significant correlations that exist between variables.

Multiple Regression (MR) was used to study the influence of the selected variables, such as income, age and religion on affirmative score for willingness to comply with the HIV/AIDS prevention measures, the dependent variable. Since here the dependent variable is influenced by more than one independent variables MR has been considered a suitable method of analysis (Wong and Lee, 2005). According to Mason and Perreault (1991) MR is useful in case of finding the linear combination of a set of predictors that provide the best point estimates of the dependent variable across the collected dataset. Here three types of multiple regression analysis have been considered which are simple multiple linear regression, best subset model of multiple regression and step-wise model of multiple regression.

Based on the existing literature and relevant theories noted above and my acquaintance with the Indian culture, at least twelve independent variables [efficiency of preventive measures score, age, religion, household income, employment status, living arrangement in terms of living

with parents/relatives, alone, or others (in hostels or with friends); marital status, self rating of knowledge, self-rating of vulnerability, power to taking decisions, attendance in workshops and perception of whether use of preventive measures would hamper freedom] have been considered for the regression analysis. It is evident from the variables selected above that a lot of importance has been given to lifestyle of the respondents as well as their perception.

Table 3.1 lists the components identified to draw conclusions on the willingness of the respondents to comply with the commonly suggested preventive measures. Affirmative response for willingness to comply is the dependent variable in the analysis. All the respondents will be rated based on their response. All the affirmative responses of the respondents were summed up to form the affirmative score for willingness to comply. This score was used as one of the variables indicating willingness to comply. A respondent could have a score ranging between 0 to 11 for this variable.

	MODES OF PREVENTION	YES	NO	UNDECIDED
1	ABSTAIN FROM SEXUAL RELATIONSHIPS			
2	USE OF CONDOMS			
3	AVOID SHARING NEEDLE AND SYRINGE			
4	AVOID IV DRUG USE			
5	DELAY SEXUAL DEBUT			
6	CHECKING BLOOD FOR THE VIRUS BEFORE TRANSFUSION			
7	EDUCATION ABOUT SEXUALLY TRANSMITTED DISEASE (STD), HIV AND AIDS			
8	SCOPES FOR DISCUSSION WITH PEOPLE IN AUTHORITY OR KNOWLEDGEABLE PEOPLE			
9	QUERY ANSWERING COLUMNS IN NEWSPAPERS AND MAGAZINES			
10	GETTING REGULAR CHECKUPS FOR THE VIRUS			
11	OTHER - SPECIFY			

Table 3.1 Respondents willingness to comply with HIV/AIDS preventive measures

In order to make the HIV/AIDS transmission knowledge and awareness indices more objective, a HIV transmission knowledge of the respondents needs to be explored. Table 3.2 consists of modes of transmission as mentioned in the literature as well as some common

misconceptions (e.g., casual touch leads to spread of HIV/AIDS) (Table 3.2). The list that was thus provided in the questionnaire had some incorrect responses to ensure that the respondent's knowledge was correctly evaluated. The responses received for each of the modes of transmission will be illustrated in frequency distribution tables to highlight the most well known and least popular modes of HIV transmission.

	MODES OF TRANSMISSION	TICK MARK
1	MOSQUITO BITE	
2	SHARING RAZORS	
3	CASUAL TOUCH	
4	SHARING TOOTH BRUSH	
5	SEX WITHOUT PROTECTION	
6	MOTHER TO FETUS	
7	SHARING FOOD OR CUPS	
8	SHARING CLOTHES	
9	BREAST FEEDING	
10	COUGHING OR SNEEZING	
11	SHARING PUBLIC PLACES, WORK SPACES OR HOUSES	
12	SHARING NEEDLE OR SYRINGE	
13	BLOOD TRANSFUSION	
14	SHARING LAVATORIES	
15	IV DRUG USE	
16	BLOOD DONATION	
17	OTHER – SPECIFY	

Table 3.2 Modes of HIV/AIDS transmission

Every correct answer will be assigned a score of one and incorrect answers will be marked as zero. Thus, for Table 3.2 the highest possible score for a mode of transmission can be will be 354 while the lowest possible score will be 0. The score will be summed up for each of the modes of transmission in order to gain perspective of the knowledge of the respondents. The modes of prevention that have been shown in Table 3.3 will also be rated in the similar manner. Knowledge with regard to preventive measures was tested in two levels. In the first level, the respondents were required to mark the correct preventive measures and another question required

them to assess the efficiency of each of the preventive measures they selected in protecting them from the disease.

	MODES OF PREVENTION	TICK MARK
1	AVOIDING MOSQUITO BITES	
2	ABSTAIN FROM SEXUAL RELATIONSHIPS	
3	USE OF CONDOMS	
4	AVOID SHARING NEEDLE AND SYRINGE	
5	AVOID IV DRUG USE	
6	DELAY SEXUAL DEBUT	
7	SEPARATE LAVATORIES FOR HIV INFECTED	
8	CHECKING BLOOD FOR THE VIRUS BEFORE TRANSFUSION	
9	EDUCATION ABOUT SEXUALLY TRANSMITTED DISEASE (STD), HIV AND AIDS	
10	SCOPES FOR DISCUSSION WITH PEOPLE IN AUTHORITY OR KNOWLEDGEABLE PEOPLE	
11	QUERY ANSWERING COLUMNS IN NEWSPAPERS AND MAGAZINES	
12	GETTING REGULAR CHECKUPS FOR THE VIRUS	
13	STOP PEOPLE WITH AIDS FROM ATTENDING SCHOOLS AND WORK PLACES	
14	AVOID SHARING FOOD	
15	OTHER – SPECIFY	

Table 3.3 Modes of HIV/AIDS prevention

Table 3.3 shows the list of questions that have been used to assess the knowledge with regard to methods of prevention that are available to the respondents. Here again every correct response will be assigned a score of one and incorrect answers will be marked as zero. Thus for Table 3.3 the highest possible score for each preventive measure can be 354 while the lowest possible score will be 0.

In order to gauge the efficiency of the preventive measures used in Table 3.3, a likert scale was used where the respondents rated the efficiency of the preventive measures in protecting them from the disease. In order to aid calculations, a numeric score was assigned to each response (Very high = 10, high = 5, no benefit = 0, low = -5, and very low = -10). A sum of the total score is taken and the average score is calculated to assess the perceived efficiency of individual preventive measures. As a result the preventive measures could get a maximum score

of 10 and a minimum score of -10. A sum of the responses given by the students for this question has been used to calculate the efficiency of preventive measure score. The maximum possible score is thus 100 while the minimum score is -100. The perceived benefits of the preventive measures can induce positive health behavior of the respondents. As a result the information collected will be represented in frequency distribution charts as well as correlation and regression analyses. From this table an attempt will also be made to gauge the perceived efficiency level of the various preventive measures where the scores of the preventive measures will be summed up. Since the participants might have a higher likelihood of obeying a preventive measure that they find efficient such an analysis was very significant.

As indicated before, human behavior is often influenced by its environment. Thus the questionnaire will attempt to collect information pertaining to the possible information sources for the respondents. According to Jurich et al. (1992) it is not enough for a person to have information, he or she needs to be motivated to utilize the available information and apply it to induce behavioral change. An attempt has been made to gauge the effectiveness of the various sources of information, that the governmental and non governmental organizations have made use of in order to spread HIV/AIDS related information. Table 3.4 lists some of the widely used AIDS awareness information sources. In order to gain an insight with regard to effectiveness of the various sources of information, the respondents have been requested identify the valid sources of information from a list of options that was provided to them.

	SOURCES OF INFORMATION	TICK MARK
1	NEWSPAPERS AND MAGAZINES (articles and columns like A.S.K , where questions regarding HIV, AIDS and STD are answered	
2	TELEVISION	
3	RADIO	
4	PAMPHLETS	
5	BILLBOARDS	
6	CALLING *"BULADI"* (AND OTHER CALL CENTERS WHERE QUESTIONS CAN BE ASKED WITH THE OPTION OF HAVING IDENTITIES KEPT SECRET)	
7	PARENTS, RELATIVES, TEACHERS AND FRIENDS	
8	WORKSHOPS AND SEMINARS BY GOVERNMENTAL AND NON GOVERNMENTAL ORGANISATIONS	
9	INFORMATIVE BOOKS	
10	DOCTORS, NURSES, PHARMACISTS	
11	OTHER – SPECIFY	

Table 3.4 Various sources of HIV/AIDS related information

The questionnaire also attempted to identify the people in their immediate environment to whom they feel comfortable to go to if they need to seek information regarding the disease. In the Indian culture, women open find it difficult to discuss topics associated with sexual health. Thus it was relevant to find out with whom the respondents can discuss freely and get their queries answered. It is also relevant in order to ensure that the students were gaining access to accurate information. For example: if they rely on friends for their information then it is important to ensure that the educational institutes employ HIV/AIDS related workshops to ensure all students have access to correct information. In case the students rely on their parents for information then it needs to be ensured that the parents have the required knowledge required to the disease/virus. Since a lot of trust exists with information collected from parents, students may have a very incorrect notion of the disease and accordingly perceive their level of vulnerability to the disease if their parents are not well informed. Table 3.5 illustrates some of the people who might have been considered by the respondents for information related to the

disease. For table 3.5, the respondents were required to rate their level of comfort and a rating of 1 was given for most comfortable while -1 was given for not comfortable and no idea as been given a point value of 0.

SRL NO	PERSON	MOST COMFORTABLE	NO IDEA	NOT COMFORTABLE
1	MOTHER			
2	FATHER			
3	SIBLINGS			
4	OTHER RELATIVES			
5	TEACHER			
6	FRIENDS			
7	NEWSPAPER QUERY COLUMNS			
8	CALL CENTERS SET UP FOR QUERY HANDLING			
9	DOCTORS			
10	REPRESENTATIVES OF GOVERNMENTAL AND NON GOVERNMENTAL ORGANIZATIONS HOLDING WORKSHOPS AND SEMINARS			
11	OTHER - SPECIFY			

Table 3.5 Respondents' level of comfort in discussing HIV/AIDS related information

The students have been asked if they had previously attended HIV/AIDS workshops as it may have an influence on the knowledge of the students as well as their perceived risk and vulnerability. The respondents have also been asked to rate their level of relevant knowledge and their perceived vulnerability to the disease as it might determine their health seeking behavior. Since in India women are dominated, the respondents have also been asked about their self perceived decision making abilities. They have also been asked the level at which their decisions are influenced by others. An attempt will also be made to see if there is an effect of household income, religion, living arrangement and marital status on HIV/AIDS risk perception of the respondents.

Respondent Profile

Three hundred and fifty four female college students from five colleges in Kolkata, were been surveyed for purpose of research. In order to enable greater understanding of the respondent behavior, some details about their background have been provided. In figure 3.4, an attempt has been made to illustrate the age distribution of the respondents. It can be observed that 33% of the respondents are were 18 years in age. Twenty four percent of the respondents were 20 years in age. Since the respondents were selected based on their willingness to answer the questionnaire, it can be concluded from the figure that college students who were either 18 or 20 showed greater eagerness to respond to the questionnaire. Those who were 23 years and higher showed a greater reluctance to respond or mention their age in cases where they responded. Ten percent of the respondents did not mention their age.

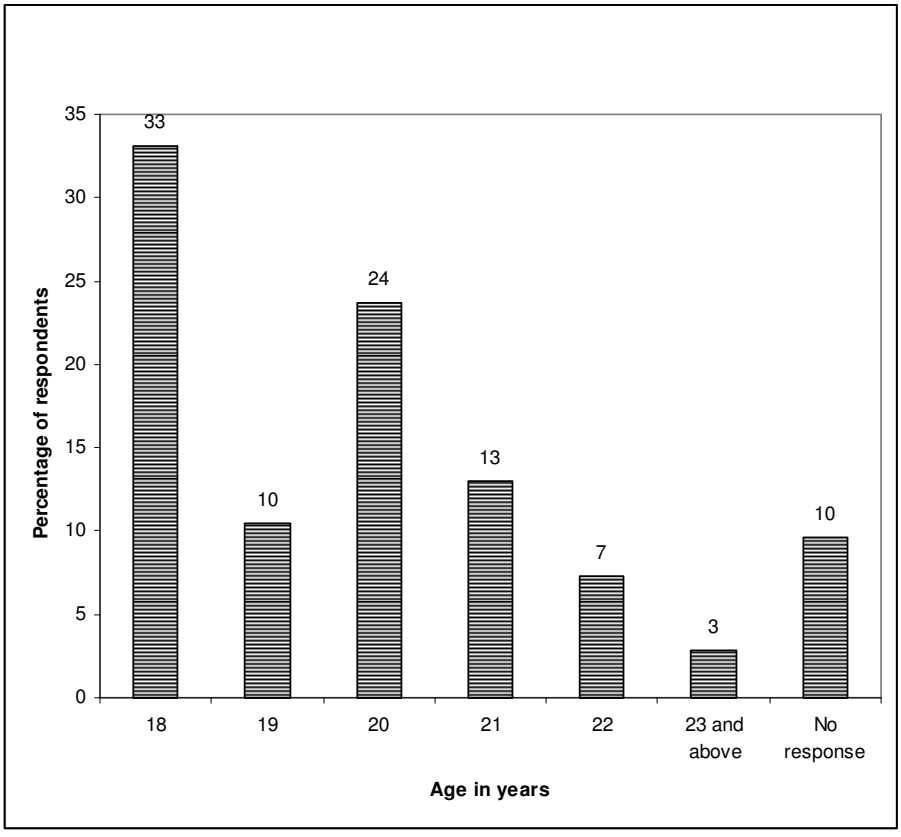

Figure 3.4 Age distribution of respondents

Religion is a significant factor that needs to be considered. Jurich et al. (1992) are of the opinion that individuals who considered themselves more religious showed greater restraint in sexual situations and have been found more likely to opt for a positive health behavior than those who consider themselves non religious. Table 3.6 illustrates the religious background of the respondents. It illustrates that 68% of the respondents are Hindus, while 13% of the respondents are Christians, 8% of the respondents are Muslims and 3% belong to other religions. The other religions include Sikhs, Jains and Buddhists. Eight percent of the respondents appear reluctant to mention their religion. The inequality in the distribution of religious groups among respondents may imply that Hindus were either more open to responding to the questionnaire or there was a predominance of Hindus attending colleges. The second however seems to have greater likeliness of occurrence since 72.47% of the population of West Bengal are Hindus (Census of India, 2001).

Religious Composition	**Absolute Numbers**	**Percentage**
Christian	45	13
Hindu	242	68
Muslim	27	8
Other religions	11	3
No response	29	8

Table 3.6 Religious composition of respondents (Total response: 354)

Another factor assumed to determine willingness to comply with HIV/AIDS preventive measures is level of income. Respondents were required to provide information pertaining to their monthly household income categorized into 4 groups. The four groups as illustrated in

Figure 3.5, were less than Rs 10,000, Rs 10,000 – Rs 24,999, Rs 25,000 – Rs 49.999 and above Rs 50,000. It is relevant to mention here that $1 = Rs 50.00 (approximately).

Thirty eight percent of the respondents have a household income per month of less than Rs 10,000. Twenty seven percent of the respondents belong to the income group between Rs 10,000 to 24,999 while there are 16% of the respondents who have a monthly household income between Rs 25,000 and 49,999. Only 6% of the respondents have a monthly household income above Rs 50,000. Fourteen percent of the respondents appear to be reluctant to mention their household income.

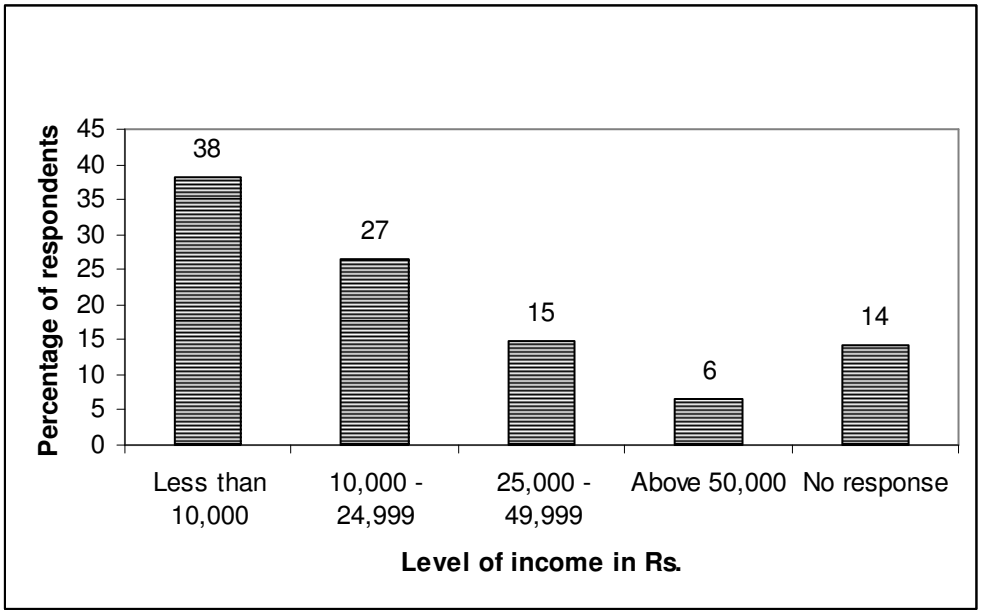

Figure 3.5 Monthly household income levels ($1 = Rs 50)

It can be mentioned here that of the respondents, 85% of the respondents live with their family. In Indian culture, it is common for children to reside with their parents. The only scenario where students reside away from their families is when they attend a college which is away from their hometowns. Sometimes employment opportunities also make students look for housing opportunities if they live away from the city because commuting long distances daily is considered unsafe by family members.

It is also important to look at employment status of the respondents because of the belief that employment opportunities make students financially independent as a result of which they may indulge in risk taking behavior (Sharma et al., 2001). It can be further added that single women who are independent are more vulnerable to high risk sexual behavior (Sharma et al., 2001). The employed do not depend on their family for their living expenses so there is often less parental control exerted over them. It is an interesting factor as the employed might exhibit a more responsible behavior and not misuse their increased level of freedom. Sometimes the need for increased pocket money has been known to drive students towards prostitution (Chaudhuri, 2008). Thus those who are employed might not think it is necessary to take part in high risk professions which result in easy money. Chaudhuri (2008) pointed out in his article in The Telegraph newspaper that housewives and college students worked as sex workers for money to buy luxury items like cars and smart phones. Ray Chaudhuri (2007) in his article in the Daily News and Analysis noted that the young from educated, well established, influential families are taking part in slave trade for entertainment. It is however incorrect to assume that all those who are unemployed would be interested in prostitution for income.

Table 3.7 illustrates the employment status of the respondents. Eighty percent of the respondents are unemployed while 13% of the respondents are employed. Seven percent of the respondents have not mentioned their employment status. It is worth mentioning here that in the Indian culture the students concentrate mainly on studies while in college rather than looking for employment opportunities while enrolled in college.

The scenario depicted in Table 3.7 is very much what would be expected specially since most of the colleges surveyed have hours coinciding with 9 a.m.-5 p.m. working hours of companies thus making it difficult for students to take up regular jobs. Since there is no concept of flexible enrollment, all students are expected to spend a fixed amount of time in college which

usually coincides with normal office hours thus making it difficult for students to work with regular jobs. The outsourced call centers are common places where students find employment since it often requires them to work according to American or European clocks thus having night shifts which do not coincide with class timings.

Since most of the students reside with their families, their need for money is limited as they are not required to pay for their basic needs of food and lodging. In the Indian culture it is also not uncommon for the parents to provide money for transportation and other basic requirements. As a result for most students the need to look for employment while in school is limited.

Employment Status	**In Absolute Numbers**	**Percentage**
Unemployed	283	80
Employed	47	13
No Response	24	7

Table 3.7 Employment status of respondents (Total Response: 354)

Marital status of the respondents is another factor that needs to be noted. Of the respondents, 94% are unmarried. It could be that there are a fewer married students attending colleges or that after marriage women drop out of colleges. Since the respondents filled out the questionnaire by choice, it can be mentioned that there might have been greater reluctance among the married to fill out the questionnaire.

Since the opinions of the respondents concerning their willingness to comply with the suggested preventive measures might have been influenced by their prior attendance in HIV/AIDS workshops, Table 3.8 illustrates the respondents' prior attendance in workshops. From table 3.8 it is evident that 38% of the respondents have attended workshops and seminars

on HIV/AIDS, while 55% of the respondents have never attended workshops and seminars. The remaining 6% did not inform about their attendance status.

Attendance in workshops	**In Absolute Numbers**	**Percentage**
Attended	196	55
Not Attended	135	38
No Response	23	6

Table 3.8 Respondents attendance in workshops (Total Response: 354)

For a country like India, where women are often subject to domination it was significant to look into the ability of women to take part in decision making. Since the surveyed are highly privileged and educated it is significant to know if they perceive themselves powerful enough to make their own decisions. Self perception of power may not mean that they will actually be able to make decisions but it is important for women to feel empowered. If the women feel powerful, then there is a greater chance that they will be able to convince their partners to take part in positive health behavior. In this case there is a greater scope for her voice being heard incases where decisions regarding use of HIV/AIDS preventive measures are required.

Table 3.9 illustrates that 81% of the respondents feel that they have the power to make decisions. This is a very optimistic picture. It implies that if the college students are provided accurate information they perceive that they have enough power to adopt positive health behavior. Since they feel empowered it is thus required that they are targeted and influenced to employ positive health behavior.

Power to take decisions	In Absolute Numbers	Percentage
Yes	287	81
No	49	14
No Response	18	5

Table 3.9 Respondents' power to take decisions (Total Response: 354)

It is significant to consider the perceived vulnerability of the respondents as it might determine their willingness to comply. A two way relationship can be observed between vulnerability and willingness to comply. Those who perceive themselves as vulnerable might show a greater willingness to comply. It may also be that since the respondents are willing to comply with the preventive measures, they perceive that they have a low level of vulnerability. Of the respondents, approximately 33% feel that they have a very low level of vulnerability, 34% perceive that they have a low level of vulnerability, 15% are indifferent, 12% are of the opinion that they have a high level of vulnerability while 6% believe that they have a very high level of vulnerability to the disease.

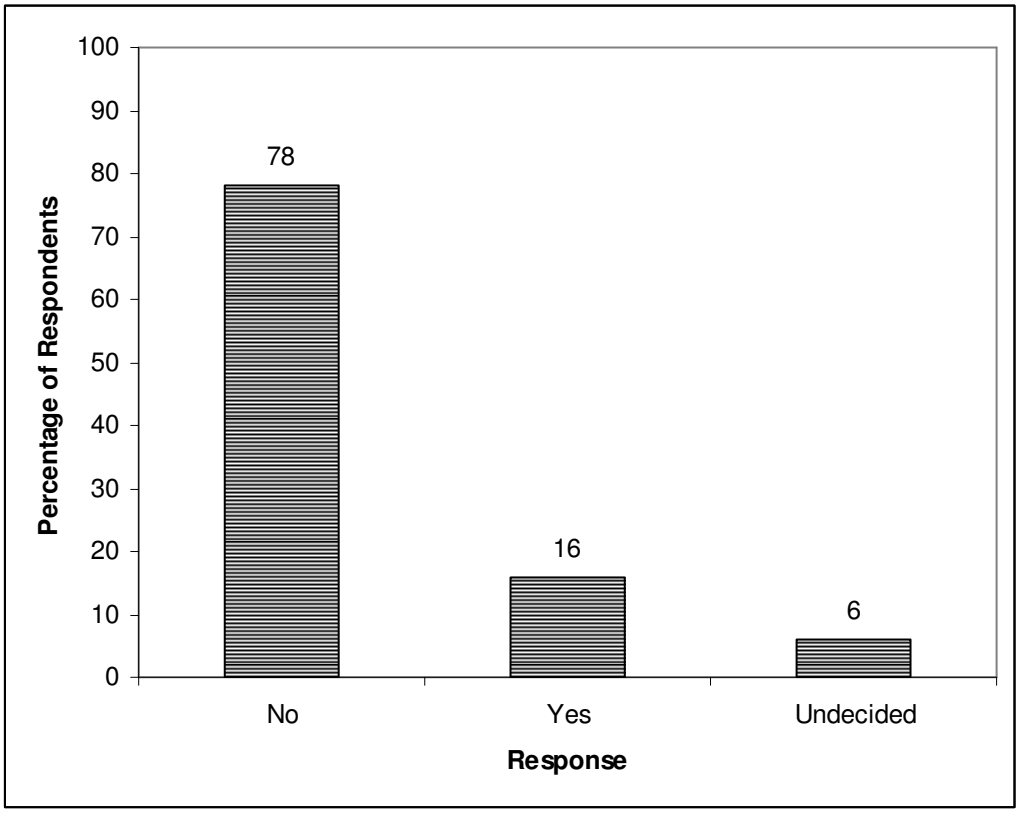

Figure 3.6 Respondent perception of whether use of preventive measures would hamper freedom

Figure 3.6 illustrates that 78% of the respondents' perceive that using preventive measure would not hamper freedom in life while 16% think use of preventive measures will hamper their freedom. It is important for all the respondents to correctly know of all the preventive measures to be sure if it will hamper their freedom. If they have a perceived mental barrier, it needs to be addressed while being informed of positive health behavior. There might however be a few students who think using positive health behavior would hamper freedom yet take positive health behavior. Also there might be some who think using preventive measures would not hamper freedom yet no take precautions. However there might be fewer people who would fall in the last category.

Figure 3.7 illustrates the openness of respondents to comply with the various preventive measures.. Seventy percent of the respondents said they were willing to comply while 20% of the respondents have openly declared their unwillingness to comply. Ten percent were still undecided. It is however an optimistic picture that most of the respondents showed a willingness to comply to the preventive measures.

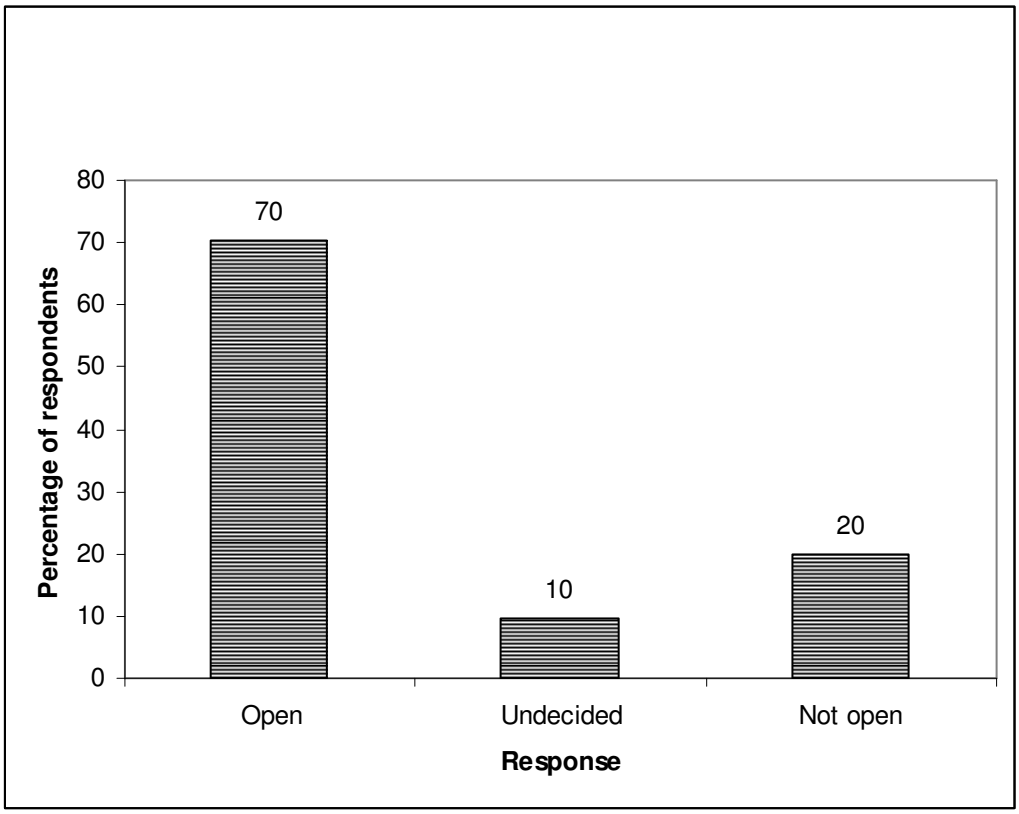

Figure 3.7 Respondents' openness to adopting preventive measures

Figures 3.6 and 3.7 are related to one another. In case the respondents perceive that using preventive measures would not hamper their freedom then they might show a greater willingness to comply. Since willingness to comply is the one of the dependent variables in the analysis, it is important to know how many of the respondents display such willingness. Willingness is important as it implies that more of the respondents will be willing to take part in positive health behavior.

After gaining knowledge of the respondent profile it is significant to look into their perceptions and the existence of possible relationships between respondent characteristics and their response. The forthcoming chapter thus attempts to analyze the data and provide a glimpse of possible meaningful relationships that may exist in the data.

CHAPTER 4 - Results

The results presented in this chapter are based on the analyses of field data that were collected in order to accomplish the three objectives of this study. College students were the primary target group primarily for this research. However interviews have been conducted with healthcare professionals and college principals in order to get a greater understanding of the issues that have been raised in this research. Several methods have been used to analyze the data. Frequency distribution tables were used to examine the knowledge of the respondents about HIV transmission and prevention, sources of information that were available to the respondents, people with whom they can discuss and get information relevant to the disease, and the openness of respondents to adoption of preventive measures. Within this chapter an attempt has also been made to identify the factors affecting the respondents' willingness to comply with the recommended HIV/AIDS preventive measures. In the forthcoming sections, findings associated with each of the three objectives of this study are presented in sequential order.

Interviews conducted with college principals prior to conducting the surveys in the colleges revealed a few interesting perspectives. In general, the college principals seemed eager to find out the outcome of the conducted AIDS research to gain information about the quality of information available to students. However they all agreed that such a survey had not been conducted within the university before. They had mentioned that they were eager to conduct workshops concerning HIV awareness among students. However past experiences with workshops had not been positive. Parents seemed reluctant to have their children know about the disease since as the workshops would talk about sexual relationships and that is a tabooed topic. The colleges did not want to enter into conflicts of interests with parents so they did not want to officially conduct workshops. Loreto College has however held awareness workshops and the

college principal prided herself in being able to provide her students with relevant information pertaining to the disease.

Dr Ayesha Chaudhuri, a senior medical officer in the School of Tropical Medicine dealing with Anti-retroviral Therapy (ART) had been interviewed to gain perspective of the AIDS awareness among college students. She revealed that there was a noticeable reluctance existed among college students to get tested. Talking about the disease is a taboo in the Indian culture, so students often do not feel free to ask questions pertaining to sexual health in the workshops that she had attended. Such reluctance is also observed when they visit doctors accompanied by their parents or elders in the family. She also noted a high degree of ignorance among the students. They erroneously believed that, if one indulges in high risk behavior only once, the threat of risk is low. Many are of the opinion that since they are not in the high risk group they cannot have HIV/AIDS. It is a common misconception that AIDS is a disease of the poor rather than a lifestyle oriented disease. The forthcoming sections will provide detailed information about the knowledge of students pertaining to the disease and the virus as well as the sources of information that the college students make use of. The primary focus will be to determine the factors affecting their willingness to comply with suggested preventive measures.

Respondent Knowledge of Modes of Transmission and Prevention of HIV/AIDS

Figure 4.1 illustrates the respondent's knowledge pertaining to the various modes of transmission. It is encouraging to note that most respondents correctly identified the various modes of transmission. There were some incorrect options that were provided to the respondents to examine their knowledge. The correct and incorrect responses have been marked differently in

Figure 4.1 and the various modes of transmission have been arranged in descending order based on the percentage that have identified the mode of transmission. A noteworthy observation is that the various methods, by which the disease can spread, though equally significant, do not have the same high percentage of respondents who have identified it correctly.

Sex without protection has the highest number of respondents who have identified it as a mode of transmission. In Figure 4.1 it can be observed that there is a sharp drop in frequency between the identified modes of transmission that rank second (blood transfusion) and third (transmission caused by sharing of needle and syringe). The other means of transmission were identified by relatively fewer respondents. Even though the students are aware, they do not have a complete knowledge of the disease. Based on the national television campaigns that the author has seen, it can be said that the first three are highly advertised in the HIV/AIDS awareness campaigns. Therefore, they appear to be the ones which people are more aware of.

When the interviewed doctors were asked about their recommendations as preventive measures they mentioned promotion of the use of condoms, regular check ups and blood safety as the primary means by which spread of the disease can be prevented. In order to assess their knowledge about the HIV/AIDS, the respondents were asked to identify the selected preventive measures associated with the disease. Incorrect knowledge of recommended preventive measures can affect compliance with such measures. In this case, the awareness of the respondents has been tested rather than their willingness to comply. It is evident that most of the respondents are aware that use of condoms can prevent the disease (Figure 4.2). The various means of prevention (correct and incorrect) have been arranged in descending order based on the percentage of respondents who have identified them as means of prevention. An interesting fact that emerges is, that most students perceive that provision of relevant education would lead to HIV prevention

and it rates higher than other direct HIV prevention measures like avoidance of the use of intravenous drugs, abstinence from sex and delayed sexual debut.

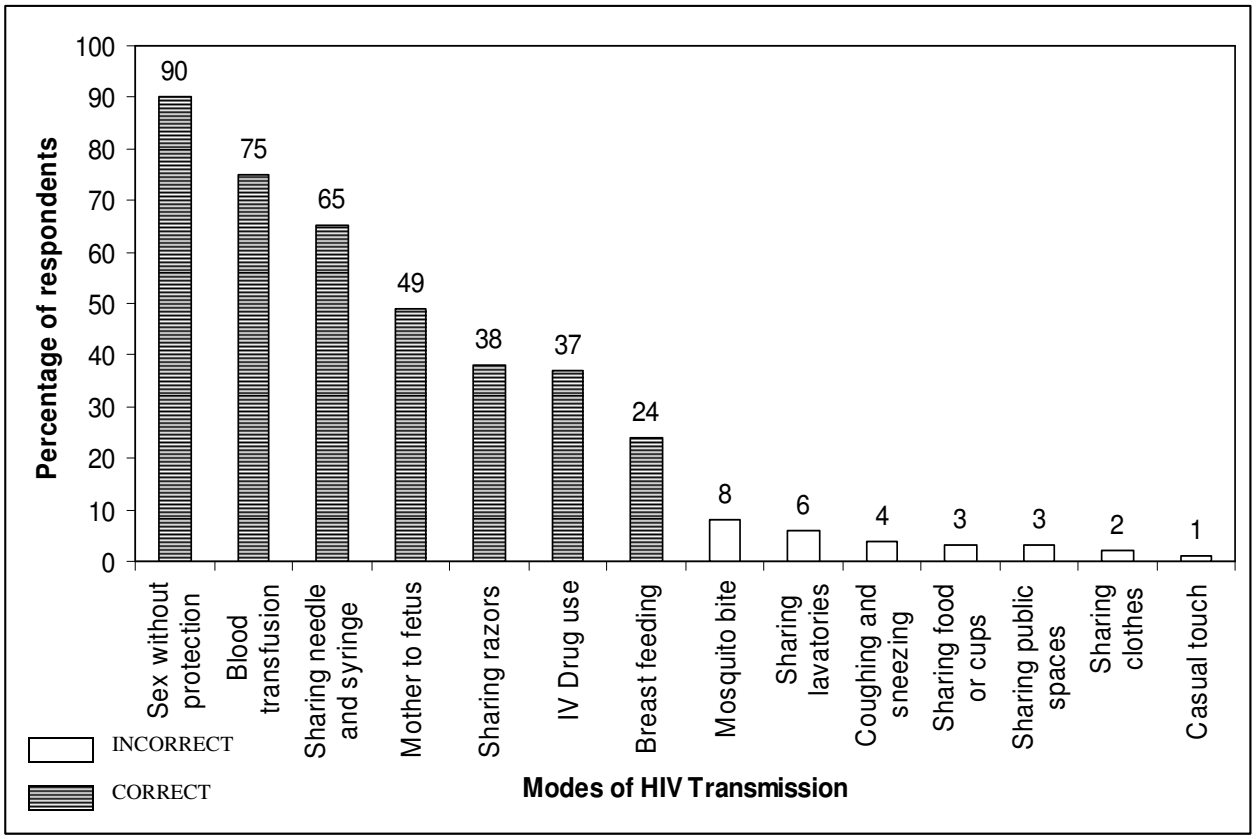

Figure 4.1 Various modes of HIV transmission

When the interviewed doctors were asked about their recommendations as preventive measures they mentioned promotion of the use of condoms, regular check ups and blood safety as the primary means by which spread of the disease can be prevented. In order to assess their knowledge about the HIV/AIDS, the respondents were asked to identify the selected preventive measures associated with the disease. Incorrect knowledge of recommended preventive measures can affect compliance with such measures. In this case, the awareness of the respondents has been tested rather than their willingness to comply. It is evident that most of the respondents are aware that use of condoms can prevent the disease (Figure 4.2). The various means of prevention (correct and incorrect) have been arranged in descending order based on the percentage of

respondents who have identified them as means of prevention. An interesting fact that emerges is, that most students perceive that provision of relevant education would lead to HIV prevention and it rates higher than other direct HIV prevention measures like avoidance of the use of intravenous drugs, abstinence from sex and delayed sexual debut.

An encouraging conclusion that can be drawn from Figure 4.2 is that many of the respondents know that attaining education, getting regular check ups and discussions about the disease are means of HIV prevention. This is particularly significant because, it implies that the college students might become parents who would encourage their children to talk about the disease. In a country like India, where talking about sex and sexually transmitted diseases is a taboo this can be considered a great step ahead. In India, since people visit doctors only if they feel unwell, it is encouraging to see that the respondents consider getting regular check ups important. Many of the HIV infected, infect others because they are unaware of their own medical condition. Since there is a lag between the times when HIV is contacted and when it develops into AIDS, the infected may not have a serious ailment forcing him/her to consider a medical check up. As a result, if the college students regularly get themselves checked, not only will they receive treatment early, but they might enable them to restrict transmission from themselves.

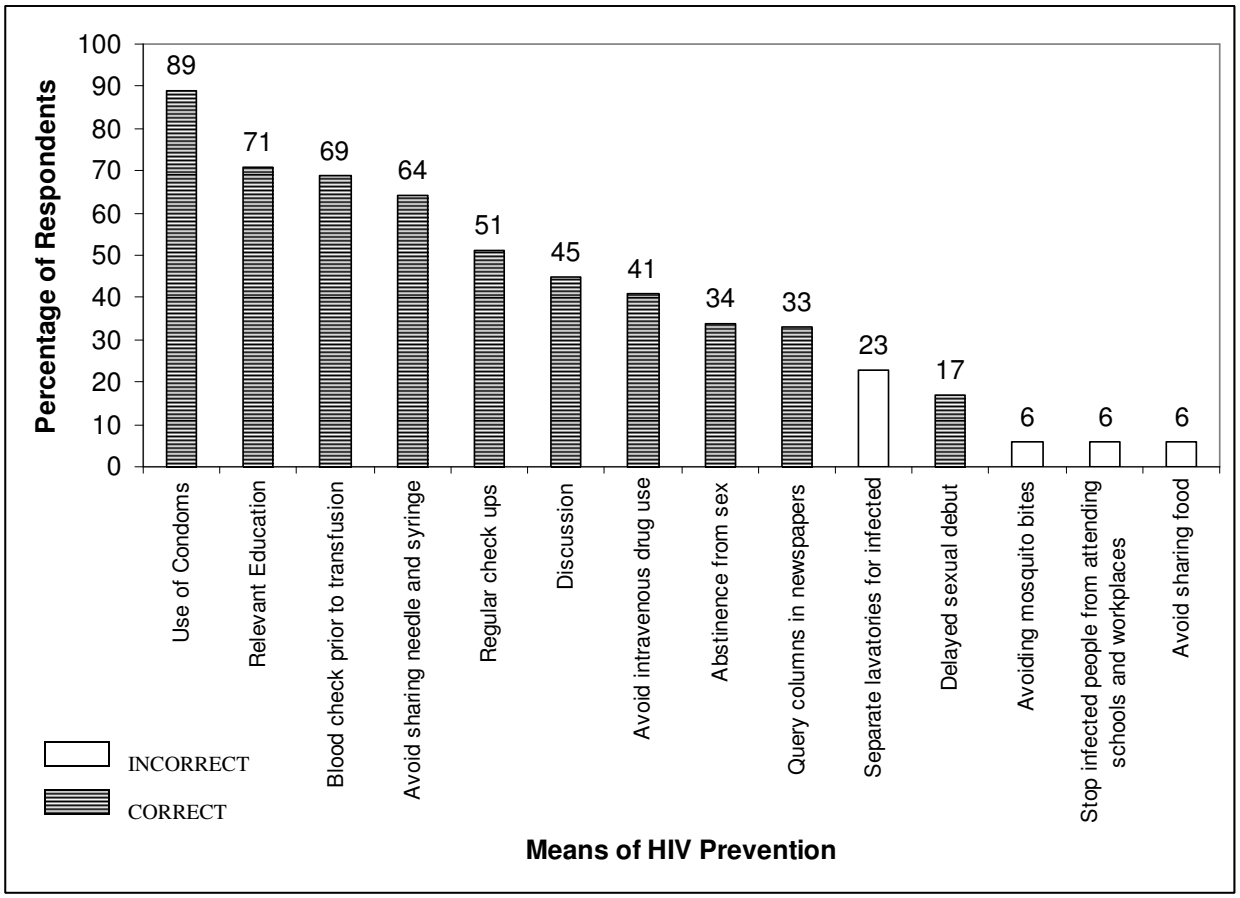

Figure 4.2 Perceived means of HIV prevention

The various misconceptions that the respondents have with regard to the spread of the virus and the means of disease prevention as highlighted in the Figures 4.1 and 4.2 are worth noting. Eight percent of the respondents think mosquito bites can cause HIV/AIDS, while 6% feel that avoiding of mosquito bites would prevent the disease. The United States Government Department of Health and Human Services (2010) confirms that HIV/AIDS cannot spread from mosquito bites. Six percent of the respondents are in favor of isolation of the HIV/AIDS infected since they do not want the infected to attend schools and workplaces. Twenty three percent think having separate bathrooms for the infected is a preventive measure. Since the virus does not spread by casual touch or by sharing common spaces, this is a stigma that the governmental and non-governmental organizations (NGOs) are trying to remove. If a significant percentage among

the educated college students favors isolation for the infected, the scenario is expected to be worse among the uneducated. As the fear of alienation keeps many from getting tested, it is just as important to remove the stigma through education of masses, as it is to let people have detailed information about this lifestyle related disease.

Both Figure 4.1 and 4.2 reveal that respondents are most aware of the virus spreading through unprotected sex. This is because the Indian culture and society discourages high risk behavior like unprotected premarital sex or post marital sex with multiple. Dr Ayesha Chaudhuri mentioned that since both HIV/AIDS campaigns and population control campaigns recommend the use of condoms, people often get confused and incorrectly believe that birth control pills will help prevent HIV transmission. It is also worth noting that many are unaware of the fact that the virus can spread from mother to the fetus of her unborn child, by sharing razors, intravenous drug use and breast feeding. This possibly identifies a loop hole in the HIV/AIDS campaigns which do not provide adequate information and thus need to be improved. Since the respondents are women, it is important for them to know that the disease can spread from mother to fetus and by breast feeding so that they can take preventive measures. Since there are drugs available that can prevent the spread of the disease from mother to child, it is important to ensure that all women are aware of the fact so that they can avail of the opportunity.

Figures 4.1 and 4.2 show one of the major drawbacks of HIV/AIDS awareness campaigns. The campaigns spearheaded by the governmental and non governmental organizations seem to highlight the fact that the disease does not spread by casual touch. This fact becomes evident if the AIDS awareness campaigns that are shown in the television are observed. This was done in order to ensure the stigma associated with the disease is removed and the ailing is cared for. While doing so, these campaigns highlight a few important ways the disease spreads rather than providing a list of all possible ways the disease can spread. Also for

many of the media campaigns there is a limitation of print space or airing time so it is often difficult for them to provide a complete list. It can be assumed that there is a great reliance on organized workshops or other sources for provision of relevant information. This is because in the workshops it is possible to provide a complete picture since it is not bound by time. Interactive sessions in workshops can further ensure complete participant comprehension of the issue. As a result, the respondents who rely on billboards, radio and television for information, receive partial information. It can thus be concluded that those who think they have a high perceived knowledge about the disease might not in reality have a high level of information pertaining to the spread of the virus or the disease.

The lack of complete knowledge of means by which the virus can spread is established in Figures 4.1 and 4.2. In Figure 4.1 few respondents were aware of the possibility of the disease spreading by breastfeeding, intravenous drug use and sharing razors. From Figure 4.2 it is evident that abstinence from sex and delay in sexual debut are not possible means of HIV prevention that the respondents are willing to consider. It can be said that those who did not select breast feeding, intravenous drug use and sharing razors were not aware that the disease could spread in those methods. Similarly it can be assumed that even though many are aware that the disease spreads through sex, it is a risk they are willing to take and abstinence from sex and delay in sexual debut are options most are unwilling to consider.

Since willingness to comply with the various preventive measures is related to the perceived efficiency of the various preventive measures, it is relevant to examine the average scores for efficiency for the various preventive measures. If the respondent perceives a particular preventive measure as beneficial there is a greater likelihood of her adopting that preventive measure. A Likert scale has been used where the respondents have rated the efficiency of the preventive measures in protecting them from the disease. In order to aid calculations, a numeric

score has been assigned to each response (Very high = 10, high = 5, no benefit = 0, low = -5, and very low = -10). A sum of the total score is taken and the average score is calculated. The maximum possible score is thus 10 while the minimum score is -10.

The students perceived that use of condoms, checking blood prior to transfusion, avoiding sharing needles and relevant education about how the disease spreads and preventive measures are the most efficient ways of disease prevention with scores between 4.8 and 6.5 (Figure 4.3). According to the respondents delay in sexual debut with an average score of 0.4 is one of the least efficient methods of sexual prevention. The query answering columns in newspapers and magazines have however been considered the least efficient means by which disease prevention can take place (Figure 4.3)**.**

Information presented in Figures 4.1 and 4.2 suggests that the respondents have a basic notion of the various modes of HIV transmission and prevention measures. With regard to the various preventive measures, the students should be informed that abstinence from sex and delay in sexual debut are means by which the spread of the disease can be restricted. A conclusion that can be drawn is that 23% of the respondents have mentioned that separate lavatories are required for the HIV infected. Students need to be informed that the disease does not spread through sharing of common spaces in order to ensure that it does not develop into stigma against the HIV infected. Incorrect knowledge of this sort needs to be addressed at an early stage in order to protect the infected from facing such stigma in the workplaces. Figure 4.3 illustrates the perceived efficiency of the various preventive measures as rated by the students. Since it is related to the student's willingness to comply it is a significant variable that deserved to be studied. The next section will provide relevant information on the sources of information used by the students regarding the disease and virus.

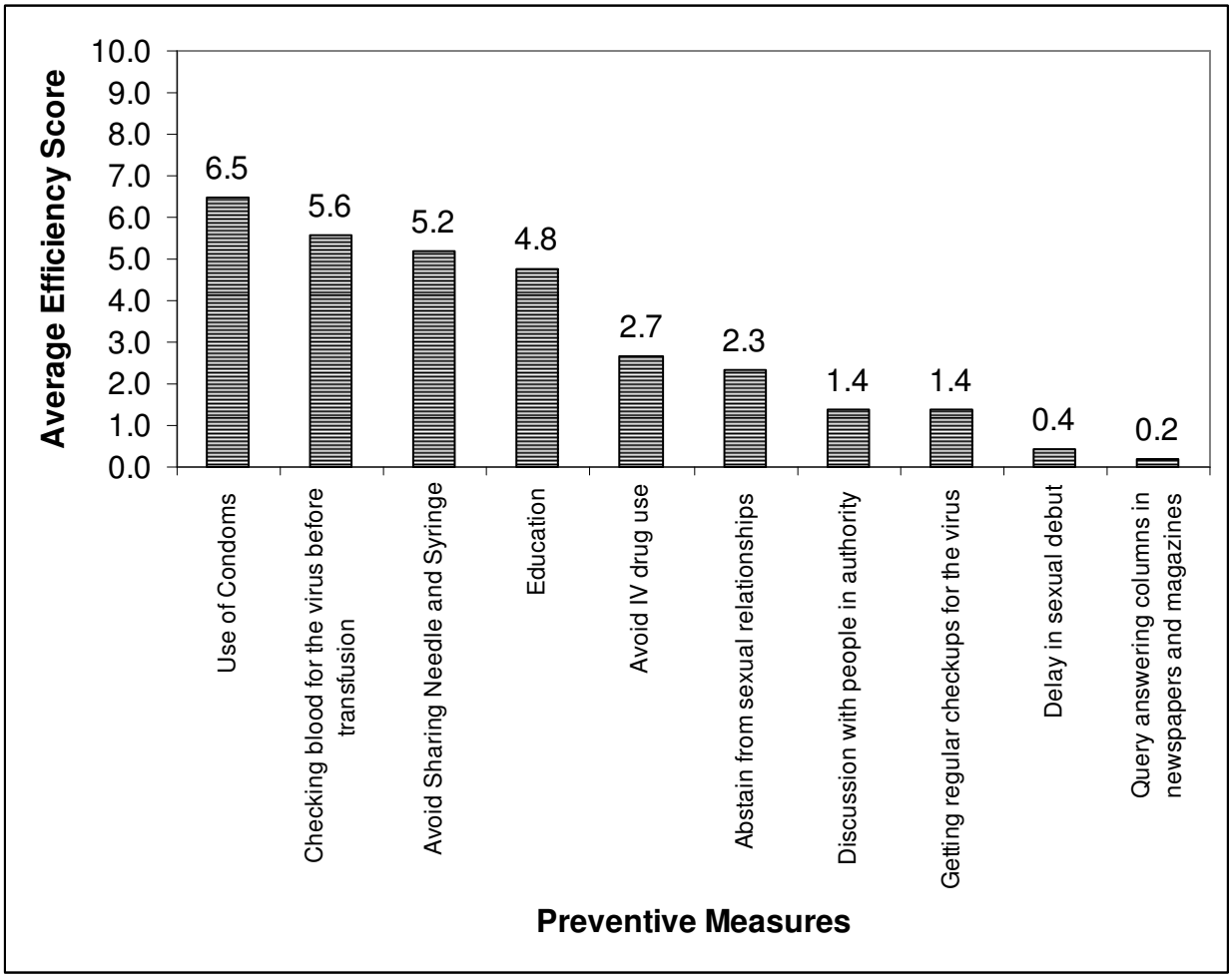

Figure 4.3 Average efficiency score of the preventive measures

Information presented in Figures 4.1 and 4.2 suggests that the respondents have a basic notion of the various modes of HIV transmission and prevention measures. With regard to the various preventive measures, the students should be informed that abstinence from sex and delay in sexual debut are means by which the spread of the disease can be restricted. A conclusion that can be drawn is that 23% of the respondents have mentioned that separate lavatories are required for the HIV infected. Students need to be informed that the disease does not spread through sharing of common spaces in order to ensure that it does not develop into stigma against the HIV infected. Incorrect knowledge of this sort needs to be addressed at an early stage in order to protect the infected from facing such stigma in the workplaces. Figure 4.3 illustrates the

perceived efficiency of the various preventive measures as rated by the students. Since it is related to the student's willingness to comply it is a significant variable that deserved to be studied. The next section will provide relevant information on the sources of information used by the students regarding the disease and virus.

Sources of Information

A discussion with HIV infected patients at the Antiretroviral (ART) center at The School of Tropical Medicine in Kolkata and the medical service providers revealed that many of the patients got themselves tested after a family member was found infected. Many of the patients who came were women who had lost their husbands to the disease and were now all alone, abandoned by their family, having to take care of themselves. Many even revealed that they were the ones taking care of their ailing spouse who later succumbed to the disease. The doctors did reveal that they received many female patients who had contracted the virus from their husbands either because they trusted them or they were unable to negotiate safe sexual practices**.** It is thus very essential that women have access to information pertaining to the disease since they not only have to protect themselves from the virus but also have to care for those suffering from the disease.

This section deals with the various sources of information pertaining to the HIV/AIDS that were used by the respondents. Figure 4.4 shows that 84% of all respondents used television as a significant source of information while newspapers and magazines have been used by 74% of the respondents. Both of these are however available to people belonging to the privileged class, since the poor would not be able to afford either, while the uneducated cannot read newspapers. Television campaigns come up in between programs and people often passively

learn about the disease from such campaigns. There are also some movies in regional languages that have been produced on HIV/AIDS, however most of those movies normally do not provide complete information about the modes of transmission or prevention but give an idea about the lifestyle of the affected people. The movies commonly give a lot of importance to the removal of stigma associated with the disease.

Discussions with medical professionals have been considered as a source of information by 61% of the respondents. Calling Buladi is a culturally friendly campaign launched by the West Bengal Government in order to increase level of HIV awareness. Buladi is the brand ambassador of AIDS awareness campaigns. Her image is one of a married woman clad in a blue sari. It is a manifold campaign where there are advertisements shown on television starring Buladi as the main character who provides information about the disease. Billboards with Buladi's image on them are a common sight in the cityscape of Kolkata. Radio jingles also aim to educate people about the disease. Call centers exist where callers can dial the number 1097 and get their queries about the disease answered while they themselves remain anonymous. The face of the call center is a female figure dressed in a Sari in order to ensure that people can relate to her. The system of communication was established so that women feel open to discuss about the disease and the assumption was that they would be more open with regard to asking questions to another woman they can relate to. The right to remain anonymous might enable them to ask questions. It is encouraging to note that 61% of the respondents consider it a source of information.

Radio and workshops were considered important sources of information by 55% of the respondents. Radio jingles have been launched to educate those who listen to radio programs. However, the popularity of radios is declining with the increasing availability of televisions at affordable rates. Attendance to workshops is often a matter of choice and governed by whether

the respondent attends or gets permission to attend workshops. The college principals have mentioned that though they were very keen on organizing such workshops, they were a little reluctant as well since there is a possibility that guardians of the students would object to such workshops. They even mentioned instances where guardians complained that they did not want their children attending such workshops. Dr. Tridip Mitra Mustafi was one of the doctors who were interviewed. He practices in T.L. Jaiswal Hospital and actively works with non-governmental organizations towards HIV awareness generation. He is in charge of all the HIV/AIDS patients who visit the hospital. Dr Tridip Mitra Mustafi noted that there was very little eagerness shown by educational institutes with regard to organizing workshops. Loreto College was however an exception as the college organizes such awareness workshops at least once a year and the Principal of the college personally ensures that there is maximum attendance in such workshops. Students were also asked about their opinion of the workshops that were organized for them. They said that rather than lecture based workshops they would prefer workshops where there were more interactive sessions. They needed sessions where they could retain anonymity while getting their questions answered.

Forty eight percent of the respondents refer to people in their immediate surroundings for relevant information. Later a classification has been done of the various people that the respondents refer to with regard to obtaining relevant information. Billboards that are commonly seen to have flooded the cityscape of Kolkata have been mentioned as a source of information by 32% of the respondents. Billboards are significant as they provide information to educated masses. They are often designed in a manner that would attract the public eye. Billboards provide enough information that generates interest tempting the passive observer to become actively interested in learning more. The billboards have to ensure that the images and writings are culturally friendly and suitable for people of different age groups. Since the governmental

and non-governmental programs spend a lot of funds designing billboards, a greater support favoring billboards as sources of information would have been encouraging.

When the doctors and college principals were asked about whom the students felt more comfortable discussing about the disease, they mentioned doctors and their peers. Dr Tridip Mitra Mustafi even mentioned that patients who were being treated for HIV/AIDS often came with spouse, friends and non-governmental volunteers. His response could imply that the infected felt comfortable with talking to the above mentioned people about their disease.

Figure 4.5 illustrates the level of importance the students assign to people in their immediate environment whom they feel comfortable with to discuss about HIV/AIDS. The figure shows that 84% of the respondents appear to be comfortable in discussing about the disease with their friends. This is not surprising considering the Indian culture where women feel more comfortable discussing about the disease with people in their age group rather than people of authority. In most cases it is possible that their queries might not be answered by adults since their parents might want to keep them protected and think they are not adult enough to know about AIDS. For a disease like AIDS, lack of knowledge increases vulnerability. As a result, their parental wish to protect their children from harsh truths may harm them more. Since the students find it more comfortable to discuss with their friends, they use this as easy means to gain information. If their friends are not accurately well informed, such discussions may lead to a spread of misconceptions which would do more harm than help.

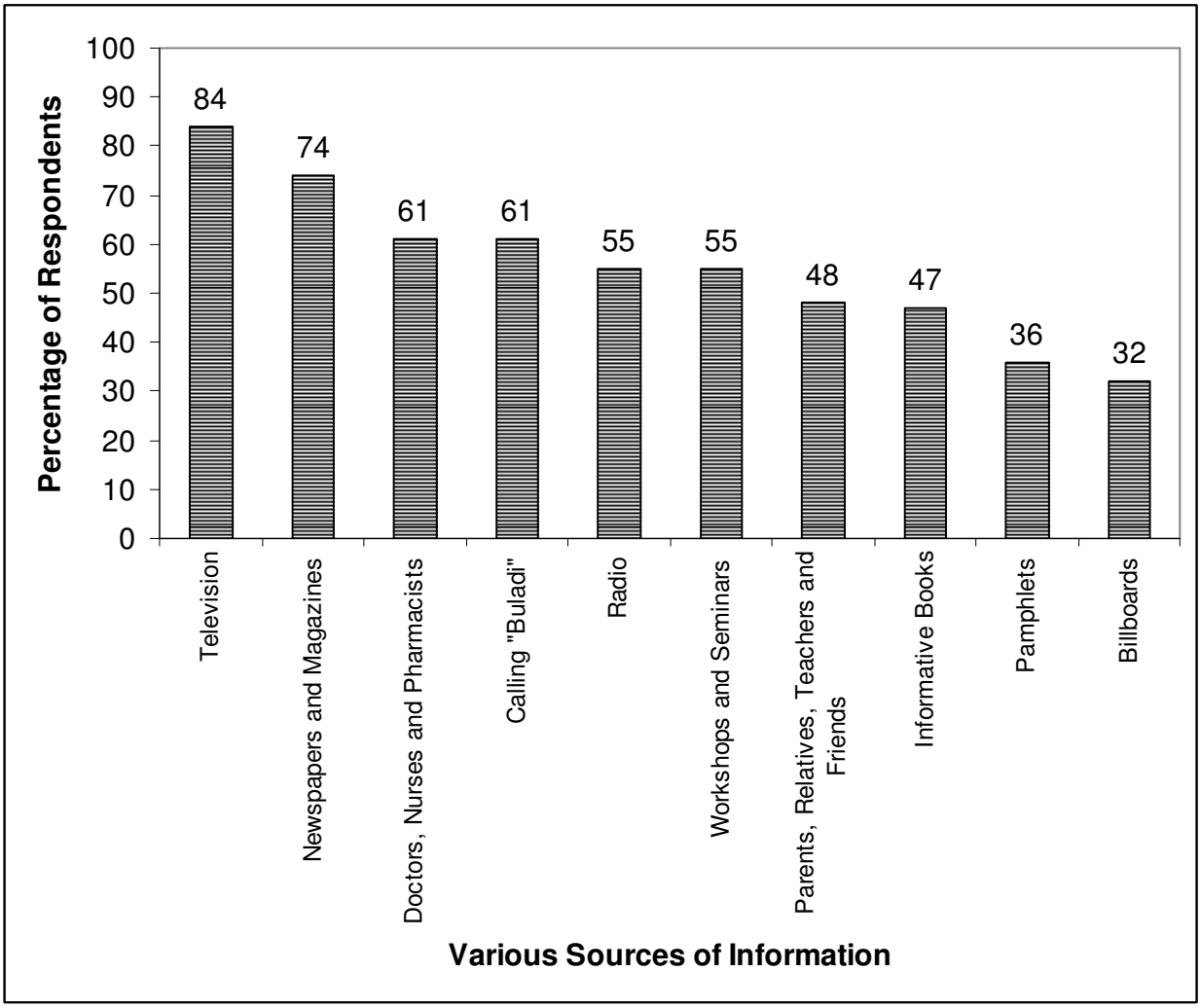

Figure 4.4 Various sources of information pertaining to HIV/AIDS

Fifty eight percent of the respondents reported that they were comfortable with discussing about HIV/AIDS with their mother. The data highlights a major gender divide with regard to comfort in approaching parents for information about to the disease. In the Indian culture women normally feel comfortable discussing sensitive issues with other women. From the data, we observe no exception to the case. The female respondents have chosen their mothers over their fathers for discussing about the disease. This does bring forth a very important issue. Since daughters refer to their mothers for information, it is essential that their mothers be well informed. Else there will be a spread of incorrect information. Since mothers could have been

protected by their families from relevant information, it is important to ensure that educational institutions organize workshops to ensure that the forthcoming mothers are well informed. Since women in the Indian culture do not feel comfortable in discussing sensitive issues with men, their fathers seem to be the persons whom about 50% of the respondents feel uncomfortable talking to. Teachers and siblings have received 31% support while relatives have the only 10% of the respondent support.

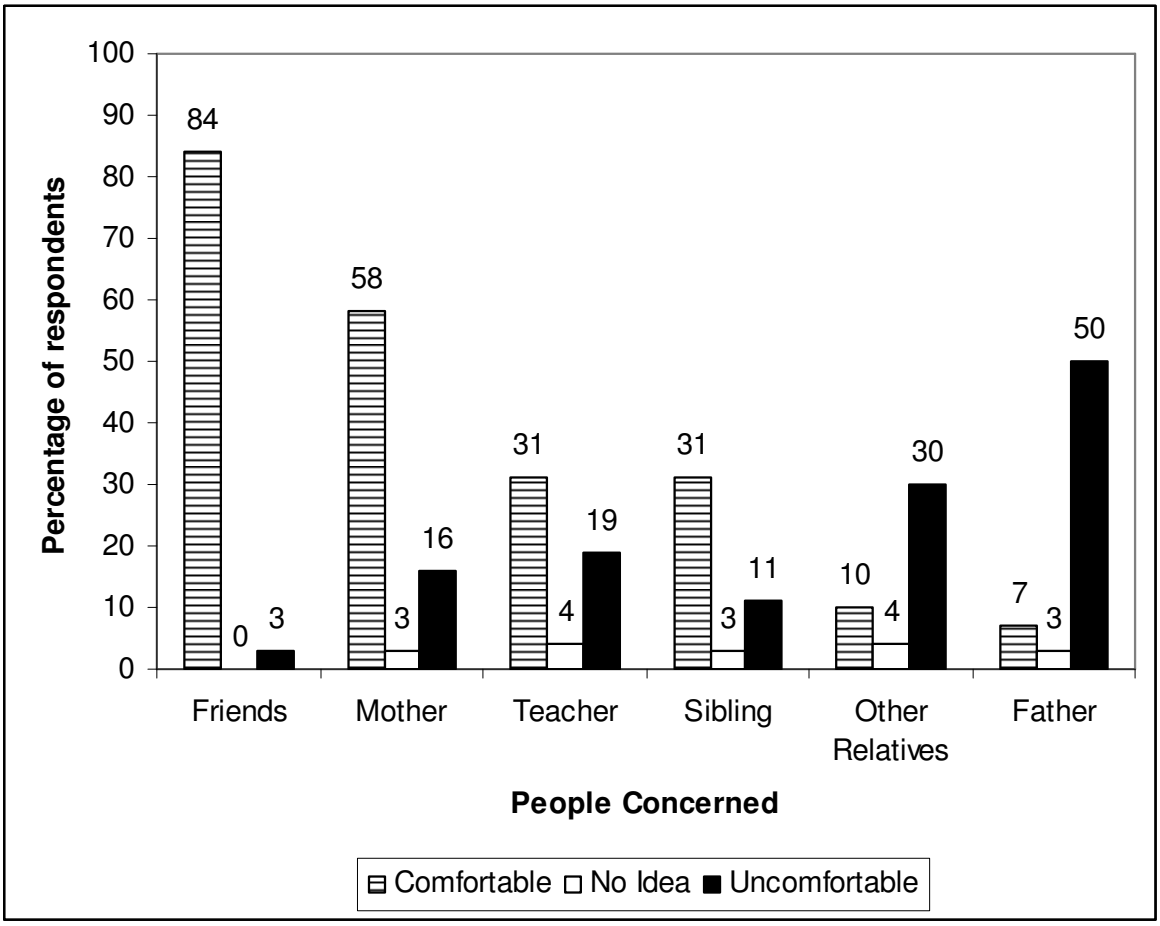

Figure 4.5 People with whom the respondents can discuss about the disease

From Figures 4.4 and 4.5 it can be concluded that the respondents highly rely on television, newspapers and magazine, medical practitioners and calling "Buladi" for pertinent information concerning HIV/AIDS. Among the people who are in their immediate surroundings from whom the respondents seek information, friends rank first followed by mothers. It is thus

important to ensure that students and their mothers are well informed so that correct information is circulated that promote positive health behavior. Most of the respondents appear uncomfortable in discussing about the disease with their fathers.

Willingness to Comply with the HIV/AIDS Preventive Measures

The primary objective of this section is to identify the factors that affect respondents' willingness to comply with HIV preventive measure (The database used for the analysis done in this section has been presented in Appendix B). For calculating the willingness to comply score, the affirmative responses to the different preventive measures have been added and used as the dependent variable. This score is also termed as affirmative score for willingness to comply or willingness to comply score in this research. Responses from all the 354 respondents have been used in this analysis. The minimum score that can be obtained by a respondent is zero while the maximum score that can be obtained is 11. Figure 4.6 illustrates the distribution of affirmative scores of the respondents. It is evident from the frequency chart illustrated in Figure 4.6 that 74 of respondents have a score of 7. This reflects a high level of willingness to comply with suggested preventive measures. The average affirmative score is 5.14. The mode is 7 out of a maximum score of 11. This further reveals that respondents in general are well informed and willing to comply with the recommended preventive measures.

Since the respondents were asked individually whether they would be willing or unwilling to comply with the various modes of HIV prevention it was significant to consider the scores obtained by each of the suggested preventive measures. If the respondent said that she would be willing to comply a score of 1 was assigned. If she said that she was unwilling a score of -1 was assigned. For those who mentioned that they were undecided a score of zero was assigned. The total score was a sum of all the positive and negative responses. As a result the

maximum possible score for a measure was 354. Figure 4.7 shows affirmative scores by the selected preventive measures.

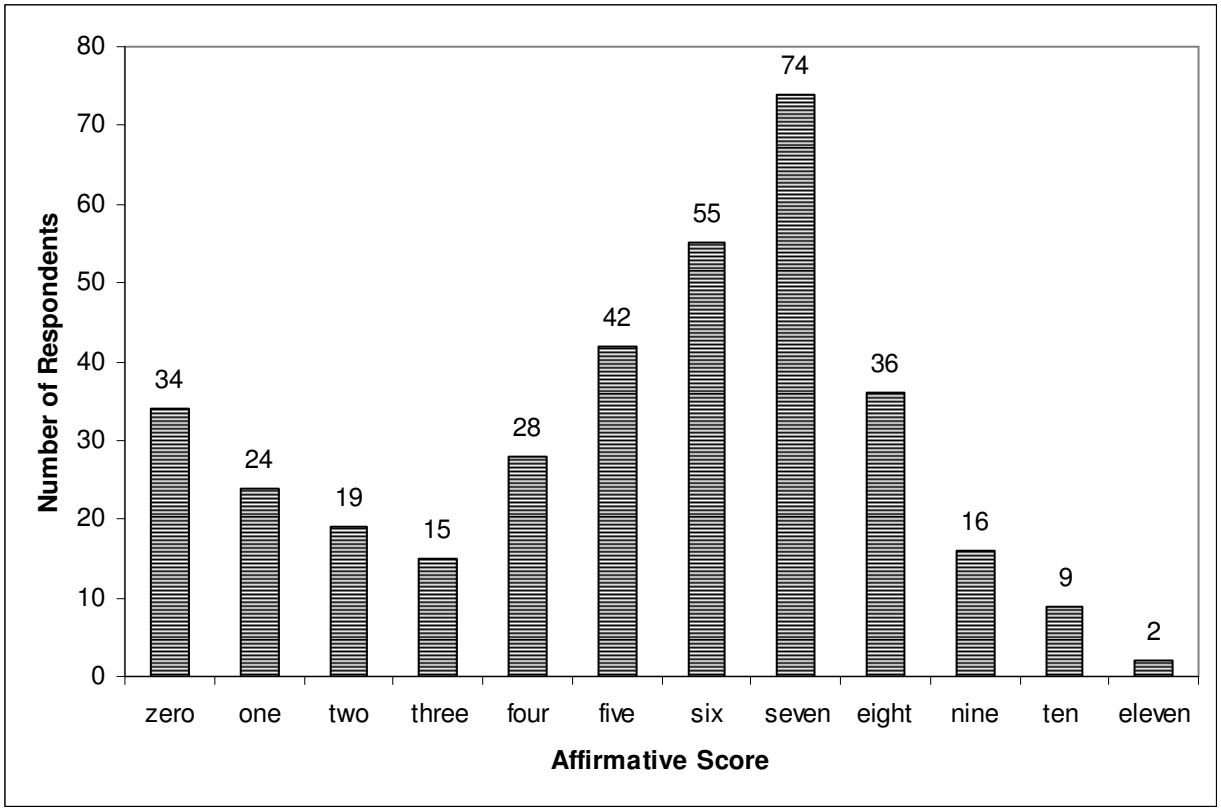

Figure 4.6 Affirmative score for the respondents

Figure 4.7 clearly established that most of the respondents have shown a high level of willingness to comply with the use of condoms as a preventative measure. Education about the disease and virus has received the second highest score. Delay in sexual debut however has not received a high score and thus can be concluded that most students have not considered it as a viable option that they would consider as a preventive measure. Twenty eight of the respondents have selected the category of other but they have not mentioned what other preventive measure that they would be willing to comply with.

Bivariate Analysis

After a basic understanding of the willingness to comply with suggested preventive measures, it is important to examine the crude effect of each of the selected independent variables on affirmative score. This will be accomplished with bivariate manner (i.e., without controlling other variables) using contingency tables and Pearson's correlation analysis. One of the purposes for the use of bivariate analysis is to gain understanding of how the selected determinants of affirmative score were associated with the dependent variable. Since an empirical association between two variables does not necessarily imply causal relationship between them, a multivariate approach to estimate statistical functions that best predicts compliance with suggested preventive measures is then applied.

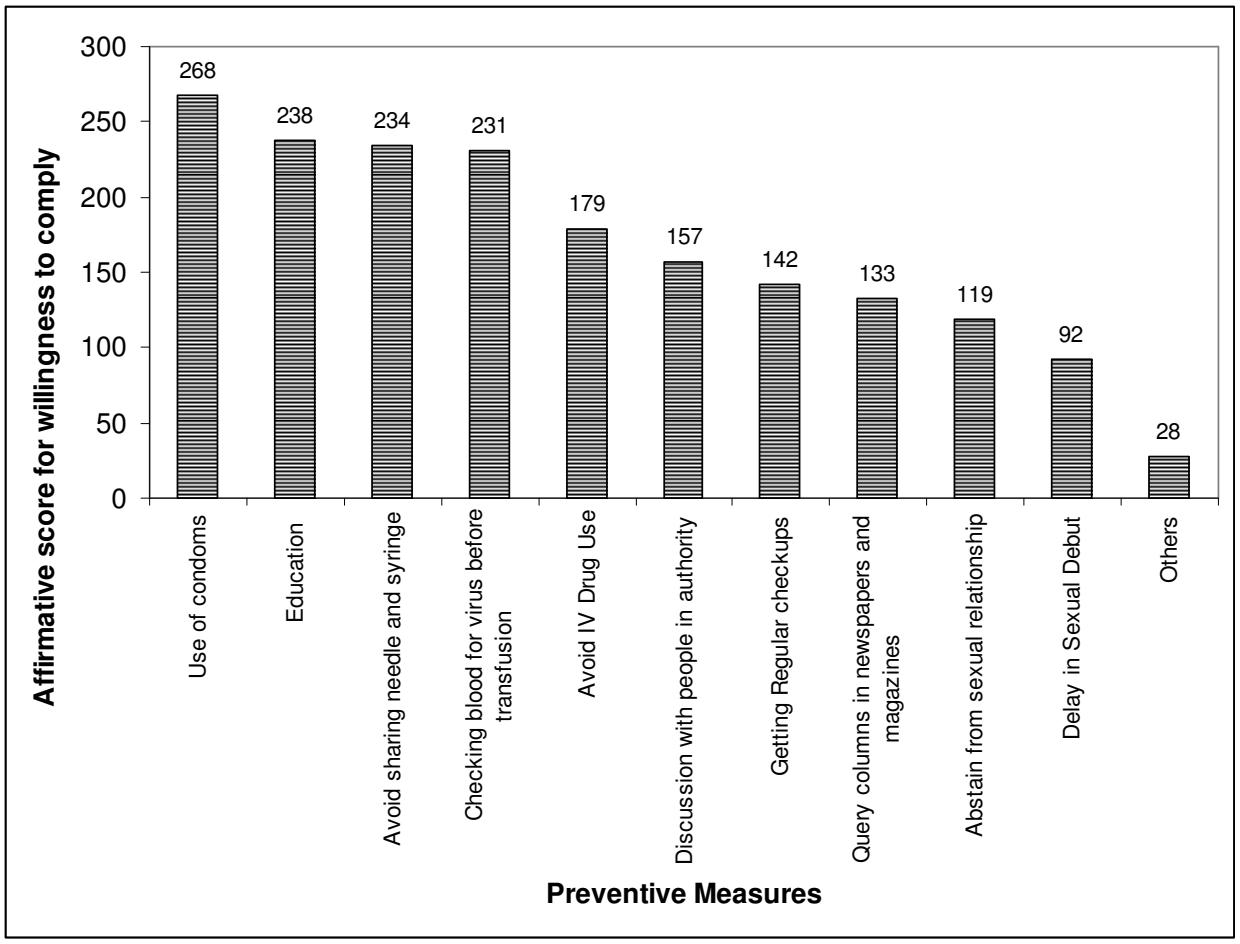

Figure 4.7 Affirmative score for willingness to comply for the suggested preventive measures

For the contingency table analysis affirmative scores for compliance with suggested preventive measures have been classified into three groups. Group 1 includes those with scores of 0-3, Group 2 includes those with scores between 4 and 7 and group 3 includes those with scores higher than 7. Breaks shown in Figure 4.6 have been used to classify the affirmative scores into three groups.

Based on the interviews conducted with Dr Ayesha Chaudhuri and Dr Tridip Mitra Mustafi, it was concluded that students in the age group of 18 to 24 were more aware when compared to less than 18 age group and more than 24 yrs age group. Since the age group that has been selected for analysis is 18-24 it was significant to consider the level of awareness of the

respondents. When affirmative score for willingness to comply has been compared to the age of the respondents, Table 4.1 evolved. From this table it is evident that willingness to comply varies with age. Due to the lack of data in the greater than 22 age groups, responses have been grouped together. Of those who are 18 years of age, approximately 44% are in Group 1 which implies that they have an affirmative score less than 3. Nearly 49% of those who are 18 years old have an affirmative score between 4 and 7. Approximately 8% of the 18 year olds have a score higher than 7. This could be because there are more workshops that are organized at the college level rather than at the high school level increasing the level of information available to the students. From my interactions with some of the students belonging to this age group it was evident that they had not actively gathered much information about issues concerning HIV/AIDS. They did however mention that the questionnaire survey was helpful to them as they found the questionnaire thought provoking.

Approximately 30% of the 19 year olds have a score between 0 and 3. Within the same age group approximately 59% have a score in Group 2. Only 11% of the respondents within this age group have a score higher than 7. Among those who are 20 years old 58% have a score in Group 2. It can however be observed that 30% of 20 year old respondents have a affirmative score within Group 3. Of those in the age group of 21, 67% have a score within Group 2. Among the 22 year old respondents, 62% are in Group 2. Of those who are more than 22 year old, 30% have a score in Group 1 and 40% have a score in Group2 while 30% have a score within Group 3.

Across the table it is evident that Group 2 houses the maximum number of respondents. Among those who have responded within Group 1, the respondents who are 18 years old make up the highest percentage. Of those whose response score is within Group 2, the 21 year olds make up the largest percentage. It is interesting to note that among those whose response score is

within Group 3, 20 year olds, 22 year olds and older than 22 make up the highest percentage of respondents. The relationship established in the table is significant since it has a statistically significant chi-square value of <0.0001.

Age	**Willingness to comply affirmative score**			**Total (%)**
	Group 1 Count (%)	**Group 2 Count (%)**	**Group 3 Count (%)**	
18	51 (43.59)	57 (48.72)	9 (7.69)	117 (100)
19	11 (29.73)	22 (59.46)	4 (10.81)	37 (100)
20	10 (11.90)	49 (58.33)	25 (29.76)	84 (100)
21	3 (6.52)	31 (67.39)	12 (26.09)	46 (100)
22	2 (7.69)	16 (61.54)	8 (30.77)	26 (100)
More than 22	3 (30.00)	4 (40.00)	3 (30.00)	10 (100)
Total (%)	80 (25.00)	179 (55.94)	61 (19.06)	320 (100)
Pearson Chi Square: 52.69 (df: 10; Prob: <0.0001)				

Table 4.1 Contingency analysis of willingness to comply affirmative score by age groups

Table 4.2 presents respondents' affirmative scores by their monthly household income. It is evident from Table 4.2 that of those who are in income group less than Rs 10,000 per month, 36% has a willingness to comply score between 0-3. Of the respondents in the income group between Rs 25,000 to Rs 49,999 there appears to be the greatest willingness to comply score. Of those within the income group of Rs 25,000 – Rs 49,000, 37% are in Group 3. Of those in the

highest income bracket under consideration, 70% are in Group 2 with scores ranging between 4 and 7. The table further shows that those in the highest income group have a high affirmative score with the least number of people in Group 1. It is to be noted that US$ 1 is approximately equivalent to about Rs 50.

From the high number of respondents of the lowest income group with scores in Group 1, it can be safely assumed that this group is either not aware of the various means to protect themselves from HIV or are unwilling to comply with all possible means to prevent the disease. There is also a possibility that since those who are in the low income group have a lot to worry about concerning their basic means of sustenance, healthcare is a privilege and not a priority. During the interview sessions some of the respondents mentioned that they had not thought about HIV prevention before and some confirmed that they were not aware of some of the methods by which HIV prevention was possible.

The conclusion from the contingency table shown in Table 4.2 ties in with the general consensus established by Paul (1994), NACO (2007) and Ghosh et al. (2009) that the poverty and the virus exist hand in hand. In the selected group of respondents, who are all educated, a clear distinction in willingness can be made based on income groups. If they are unwilling to comply with the preventive measures, it implies that they will have greater vulnerability to the disease.

Bailey and Hutter (2006) have noted that human behavior is controlled by centripetal forces that unite groups which include shared norms, beliefs and values. People commonly draw conclusions based on shared cultural rationality (Bailey and Hutter, 2006). Religion thus features as a significant factor that might govern healthcare behavior. Different religious groups have different attitudes towards women which translate to their differential access to healthcare.

Monthly household income	**Willingness to comply affirmative score**			**Total (%)**
	Group 1 Count (%)	Group 2 Count (%)	Group 3 Count (%)	
Less than Rs 10,000	49 (36.30)	72 (53.33)	14 (10.37)	135 (100)
Between Rs 10,000 and 24,999	17 (18.09)	58 (61.70)	19 (20.21)	94 (100)
Between Rs 25,000 and 49,999	6 (11.54)	27 (51.92)	19 (36.54)	52 (100)
Above Rs 50,000	1 (4.35)	16 (69.57)	6 (26.09)	23 (100)
Total (%)	73 (24.01)	173 (56.91)	58 (19.08)	304 (100)
Pearson Chi Square: 32.819 (df: 6; Prob: <0.0001)				

Table 4.2 Contingency analysis of willingness to comply by income

Table 4.3 presents respondents' willingness to comply score by religion. Of the various religious groups under consideration, it is apparent that across the table, most of the respondents belong to Group 2. Of the Christians only 4% belong to Group 1 with regard to affirmative responses. Of the Christians, 67% have a score in Group 2 and the remaining 29% have a score in Group 3. Among the Hindus, 31% are in Group 1, 56% are in Group 2 and 13% are in Group 3. Among those practicing Islam, 19% are in Group 1, 44% are in Group 2 and 37% are in Group 3. The Probability>ChiSq value of 0.0001 indicates that the contingency analysis is significant. It is evident from the table that there are fewer Hindus with a score greater than 7 than there are Christians and Muslims. Also there are a higher percentage of Hindus within Group 1 indicating that Hindus have a lower willingness to comply score as compared to the other religions that have been taken into consideration.

Religion	Willingness to comply affirmative score			Total (%)
	Group 1 Count (%)	Group 2 Count (%)	Group 3 Count (%)	
Christian	2 (4.44)	30 (66.67)	13 (28.89)	45 (100)
Hindu	74 (30.58)	136 (56.20)	32 (13.22)	242 (100)
Muslim	5 (18.52)	12 (44.44)	10 (37.04)	27 (100)
Total (%)	81 (25.80)	178 (56.69)	55 (17.52)	314 (100)
Pearson Chi Square: 23.910 (df: 4; Prob: <0.0001)				

Table 4.3 Contingency analysis of willingness to comply affirmative score by religion

Sharma et al. (2001) have pointed out that employed women or women living away from their homes in hostels tend to have a more liberal lifestyle and have a greater possibility of taking part in high risk behavior. It thus seemed significant to consider willingness to comply score by employment status and living arrangement in a contingency analysis.

In Table 4.4 a contingency analysis has been performed between employment status and willingness to comply score. From the table it can be concluded that of the unemployed, 22% are in Group 1, 57% are in Group 2 and 21% are in Group 3. Of the employed, 28% are in Group 1, 66% are in Group 2 and 4% are in Group 3. Among those who are employed, a significantly low number of respondents are in the high score range. It may be concluded that those who are employed are not dependent on their family for money. This might make them more independent and free to enjoy the liberties in life along with taking part in high risk behavior. The contingency table in this case agrees with the findings of Sharma et al. (2001). The contingency analysis is statistically significant with a probability of 0.02.

It is evident from Table 4.5 that those living with family have a higher willingness to comply score than those living away from family. It can be said that life away from family makes the respondents more reckless and thus less willing to comply with the preventive measures. The analysis is however statistically insignificant.

Employment Status	**Willingness to comply affirmative score**			**Total (%)**
	Group 1 Count (%)	**Group 2 Count (%)**	**Group 3 Count (%)**	
Unemployed	63 (22.26)	160 (56.54)	60 (21.20)	283 (100)
Employed	14 (29.79)	31 (65.96)	2 (4.26)	47 (100)
Total (%)	77 (23.33)	191 (57.88)	62 (18.79)	330 (100)
Pearson Chi Square: 7.757 (df: 2; Prob: <0.0207)				

Table 4.4 Contingency analysis of willingness to comply affirmative score by employment status

People often adopt positive health behavior based on prior knowledge of the costs associated with taking part in such behavior. Stroebe and Dewitt (1996), Bowes (1997) and Bandura (1977) are of the opinion that if the apparent benefits are more than the perceived hurdles or if the perceived barriers are less threatening than the perceived benefits then the individual has a greater chance of adopting a health behavior. Humans evaluate the costs and benefits associated with undertaking certain actions and accordingly decide whether to take part in the suggested health behavior. If the associated costs are higher than the benefits resulting from implementation of the suggested preventive measures, the individual has a greater chance of not adopting the precautionary measure under consideration. It thus seemed significant to do a contingency analysis of willingness to comply by respondent perception of whether use of

preventive measures would hamper the freedom of the women. It is expected that respondents would be more ready to accept preventive measures that they do not perceive as possible obstacles in their daily livelihoods.

Living arrangement	**Willingness to comply affirmative score**			**Total (%)**
	Group 1 Count (%)	**Group 2 Count (%)**	**Group 3 Count (%)**	
Away from family	11 (20.75)	28 (52.83)	14 (26.42)	53 (100)
With family	81 (26.91)	171 (56.81)	49 (16.28)	301 (100)
Total (%)	92 (25.99)	199 (56.21)	63 (17.80)	354 (100)
Pearson Chi Square: 3.386 (df: 2; Prob: 0.1840)				

Table 4.5 Contingency analysis of willingness to comply affirmative score with living arrangement

From Table 4.6 presents information on affirmative score by respondents' perception of whether use of preventive measures would hamper freedom. The table shows that about 11% have a willingness to comply affirmative score greater than 7 also think that it will hamper their freedom. It implies that even though they think use of preventive measures would hamper freedom, they are still willing to comply. Among those who are of the opinion that use of preventive measures would hamper freedom, 60% have a willingness to comply score in Group 2 or larger. This truly provides an optimistic picture indicating that in spite of the associated hardships; the respondents are willing to comply with the suggested preventive measures. Of those who think use of preventive measures would not hamper freedom, 20% have an affirmative score in Group 3 while 58% have a score within Group 2.

Respondent perception of whether use of preventive measures would hamper freedom	**Willingness to comply affirmative score**			**Total (%)**
	Group 1 Count (%)	**Group 2 Count (%)**	**Group 3 Count (%)**	
Yes	22 (40.00)	27 (49.09)	6 (10.91)	55 (100)
No	60 (21.66)	161 (58.12)	56 (20.22)	277 (100)
Total (%)	82 (24.70)	188 (56.63)	62 (18.67)	332 (100)
Pearson Chi Square: 9.039 (df: 2; Prob: <0.0109)				

Table 4.6 Contingency analysis of willingness to comply affirmative score by perception of whether use of preventive measures would hamper respondents' freedom

A Likert scale was constructed to understand self perception of vulnerability. As a result, if a respondent mentioned that she felt that her level of vulnerability was very high she was assigned a score of 10. If she selected that it was high then she was given a score of 5. If the respondents perceived that they had a moderate level of vulnerability then a numeric score of 0 was assigned. Similarly, when the respondents perceived that they had a low level of vulnerability then they were assigned a numeric score of -5. A very low level of perceived vulnerability was assigned a numeric score of -10.

Self rating of vulnerability (very low to very high)	Willingness to comply affirmative score			Total (%)
	Group 1 Count (%)	Group 2 Count (%)	Group 3 Count (%)	
-10	27 (23.28)	67 (57.76)	22 (18.97)	116 (100)
-5	14 (11.57)	80 (66.12)	27 (22.31)	121 (100)
0	28 (51.85)	21 (38.89)	5 (9.26)	54 (100)
5	18 (41.86)	18 (41.86)	7 (16.28)	43 (100)
10	5 (25.00)	13 (65.00)	2 (10.00)	20 (100)
Total (%)	92 (25.99)	199 (56.21)	63 (17.80)	354 (100)
Pearson Chi Square: 39.4 (df: 8; Prob: <0.0001)				

Table 4.7 Contingency analysis of willingness to comply affirmative score with self rating of vulnerability

It can be concluded from Table 4.7 that those who have a high willingness to comply score feel that they have a low level of vulnerability (with perceived vulnerability rating of -5 and -10). Since they are willing to comply with most of the preventive measures they feel that their threat from the disease is low. Again, some of those with a high level of perceived vulnerability (with a perceived vulnerability rating of 5 and 10) have a high affirmative score for willingness to comply. It is a possibility that since they perceive that they have a high level of vulnerability, they need to comply with most of the preventive measures. Approximately 42% of those with a high level of perceived vulnerability have a low willingness to comply score. It

could be that since they are willing to comply with fewer of the preventive measures they perceive that they have a high level of vulnerability to the disease.

Power to take decisions	**Willingness to comply affirmative score**			**Total (%)**
	Group 1 Count (%)	**Group 2 Count (%)**	**Group 3 Count (%)**	
No	14 (28.57)	30 (61.22)	5 (10.20)	49 (100)
Yes	72 (25.09)	158 (55.05)	57 (19.86)	287 (100)
Total (%)	86 (25.60)	188 (55.95)	62 (18.45)	336 (100)
Pearson Chi Square: 2.599 (df: 2; Prob: 0.2727)				

Table 4.8 Contingency analysis of willingness to comply affirmative score with power to take decisions

It is evident from the contingency analysis shown in Table 4.8 that most of the respondents' perceive that they have the power to take decisions. Of those who have the power to take their own decisions, 55% have a score within Group 2. It is noteworthy that of those who have decision making abilities, approximately 20% have a willingness score in Group 3 while only 10% of those with no decision making abilities have a score within this Group. However, the model is statistically insignificant.

Attendance in workshops	Willingness to comply affirmative score			Total (%)
	Group 1 Count (%)	Group 2 Count (%)	Group 3 Count (%)	
No	51 (26.02)	112 (57.14)	33 (16.84)	196 (100)
Yes	26 (19.26)	81 (60.00)	28 (20.74)	135 (100)
Total (%)	77 (23.26)	193 (58.31)	61 (18.43)	331 (100)
Pearson Chi Square: 2.344 (df: 2; Prob: 0.3098)				

Table 4.9 Contingency analysis of willingness to comply affirmative score with attendance in workshops

Table 4.9 shows respondents' affirmative scores for willingness to comply by their workshop attendance status. Apart from the scores in Group 1 where there are more respondents who have not attended workshops, for Group 2 and 3 a significant difference cannot be noted between those who have attended workshops and those who have not. However, the willingness score by attendance workshops is not statistically significant.

In the contingency analysis shown in Table 4.10 it is difficult to come to a conclusion due to the fact that nearly 3% of the respondents were present at the time of field survey. As expected among the married the willingness to comply score is lower than that among the unmarried. This is not an unexpected finding.

Marital Status	Willingness to comply affirmative score			Total (%)
	Group 1 Count (%)	Group 2 Count (%)	Group 3 Count (%)	
Married	5 (50.00)	4 (40.00)	1(10.00)	10 (100)
Unmarried	80 (24.17)	189 (57.10)	62 (18.73)	331 (100)
Total (%)	85 (24.93)	193 (56.60)	63 (18.48)	341 (100)
Pearson Chi Square: 3.5 (df: 2; Prob: 0.1738)				

Table 4.10 Contingency analysis on willingness to comply affirmative score with marital status

The students were asked to rate their level of knowledge pertaining to the disease as very high, high, low and very low. A Likert scale has been made use of in order to assign a numeric value. Very high was assigned a value of 10, high was assigned a value of 5, low was assigned a value of -5 while very low was assigned a value of -10. For a moderate perception of knowledge 0 was assigned. It is evident from the contingency analysis done in Table 4.11 that 67% of those who have rated their knowledge as low (includes score of -5 and -10) have a low affirmative score. This indicates that the respondents within this category have assessed themselves correctly. Across the table however, it is evident that the respondents have correctly judged their level of knowledge. Those who perceive that their knowledge is in the medium range (score of 5) have a score in Group 2 as well. However since there are more that 20% of the cells with count less than 5, the chi square value is not reliable.

Self rating of knowledge (very low to very high)	Willingness to comply affirmative score			Total (%)
	Group 1 Count (%)	Group 2 Count (%)	Group 3 Count (%)	
-10	6 (66.67)	2 (22.22)	1 (11.11)	9 (100)
-5	27 (29.67)	54 (59.34)	10 (10.99)	91 (100)
0	4 (44.44)	4 (44.44)	1 (11.11)	9 (100)
5	47 (20.89)	128 (56.89)	50 (22.22)	225 (100)
10	8 (40.00)	11 (55.00)	1 (5.00)	20 (100)
Total (%)	92 (25.99)	199 (56.21)	63 (17.80)	354 (100)
Pearson Chi Square: 20.539 (df: 8; Prob: 0.0085)				

Table 4.11 Contingency analysis of willingness to comply affirmative score with self rating of knowledge

Table 4.12, presents results obtained from contingency analysis of affirmative score for willingness to comply by efficiency of preventive measure score. The efficiency and benefits score was calculated based on the respondents' rating of the perceived efficiency of the preventive measures. The respondents were asked were provided a Likert scale based on which they had to rate the efficiency of each preventive measure. If a preventive measure was perceived to have a very high level of efficiency the respondent was assigned a score of 10, if she perceived that the measure had a high level of significance then a score of 5 was assigned. If the respondent perceived that the preventive measure had no impact then she was given a score of 0. As a result a preventive measure that was perceived to have a very low level of efficiency was

assigned a score of -10 and a low perceived level of efficiency was given a score of -5. There were ten preventive measures that were listed. As a result her maximum possible score on this scale could be 100 while the minimum score on this scale could be -100.

Efficiency and Benefits Score	**Willingness to comply affirmative score**			**Total (%)**
	Group 1 Count (%)	**Group 2 Count (%)**	**Group 3 Count (%)**	
>50	3 (4.48)	36 (53.73)	28 (41.79)	67 (100)
0 to 50	62 (26.96)	138 (60.00)	30 (13.04)	230 (100)
-50 to 0	25 (46.30)	24 (44.44)	5 (9.26)	54 (100)
-100 to -50	2 (66.67)	1 (33.33)	0 (0.00)	3 (100)
Total (%)	92 (25.99)	199 (56.21)	63 (17.80)	354 (100)
Pearson Chi Square: 52.101 (df: 6; Prob: <0.0001)				

Table 4.12 Contingency analysis of willingness to comply affirmative score with respondents' efficiency of preventive measure score

Table 4.12 suggests that respondents have a low efficiency and benefit score (ranging between 0 and -100), their affirmative score falls either under Group 1 or Group 2 and thus they do not have a high willingness to comply score. This could be because they cannot find the benefits of applying the preventive measures and are as a result discouraged to use the same. Those with a high efficiency and benefits score (>50) have a high affirmative score for willingness to comply as well.

It can be concluded from the contingency analyses that the variables that significantly affect affirmative score for willingness to comply are age, income, religion, employment status, respondent perception of whether use of preventive measures would hamper freedom, respondents' self perception of vulnerability, respondents' self rating of knowledge and efficiency of preventive measure score of respondents. Even though contingency highlights the possibility of a relationship a correlation analysis is required in order to quantify the magnitude and direction of the relationship.

A correlation analysis has been performed to examine the direction and strength of relationship between willingness to comply score and selected independent variables. Unlike in chi-square analysis, willingness is considered as interval scale data in correlation analysis. Table 4.13 presents correlation coefficients for affirmative scores of willingness to comply and statistically significant variables. It needs to be mentioned here that the total number of observations that have been considered vary since some of the respondents have refrained from responding to some of the questions.

Table 4.13 shows the statistically significant correlation coefficients between affirmative score for willingness to comply and the selected independent variables that have been used in the regression analysis that has been performed. The table establishes that there is a strong statistically significant positive correlation between the efficiency and benefits score of the individuals and the affirmative score for willingness to comply This implies that those who perceive that the suggested means of HIV/AIDS prevention methods are efficient, have a greater likelihood of being willing to comply and as a result have a high affirmative score for willingness to comply.

Variables		Pearson's Correlation Coefficient	Prob> IrI under H_0 : Rho = 0	Number of Observations
Efficiency of preventive measures score		0.437	<0.001	354
Employment Status	**Dummy variable for employed**	-0.162	0.0031	330
Household Income per month ($1 = Rs 50 (approx))	**< Rs 10,000**	-0.304	<0.0001	304
	Between Rs 25,000 to 49,999	0.177	0.0019	304
	> Rs 50.000	0.153	0.0074	304
Age		0.369	<0.0001	320
Religion	**Dummy variable for Hindu**	-0.247	<0.0001	325
	Dummy variable for Christian	0.222	<0.0001	325
Self Rating of Knowledge		0.129	0.0148	354
Self Rating of Vulnerability		-0.161	0.0024	354
Perception of whether adoption of preventive measures would hamper freedom		0.184	0.0008	332

Table 4.13 Pearson's correlation coefficients between affirmative scores for willingness to comply and statistically significant variables

In order to derive a possible relationship between employment status and the affirmative score for willingness to comply another dummy variable has been created where those who are employed have been assigned a value of one, else zero. The resultant correlation coefficient value of -0.16 indicates a weak negative relationship. Such a result implies that those who are employed have a lower willingness score than those who are unemployed. It is a possibility that those who are employed have tasted greater freedom than those who are unemployed and thus

feel that of all the preventive measures, can adhere to few and not all as a result of which they have a lower affirmative score. In India it is not very common for college students to be employed. Since it a special liberty enjoyed by a select few, the sense of freedom it brings along with a possibility of reckless behavior may be more than their peers in other countries.

Correlation has been calculated separately for the different income groups. The income group made use of in the analysis is not the student's individual income since most of them are unemployed but the monthly household income. Here once again dummy variables have been made use of. For the income group of less than Rs 10,000, a value of one was assigned and those not belonging to this group had a value of zero. Similarly for those, belonging to the income group between Rs 25,000 to 49,999, a value of one was allotted; else a numeric value of zero was considered. Again in order to consider a possible correlation with those having a household income higher than Rs 50,000 per month, a value of one was assigned to those within the considered income group, otherwise zero. The income group of Rs10,000–24,999 was also considered for correlation analysis but the result was statistically insignificant. Of the three income groups that were statistically significant, between Rs 25000-49,999 and greater than Rs 50,000 showed positive relation indicating that with an increase in income level the affirmative score for willingness to comply also increases. The results for the group with less than Rs 10,000 household income are quite interesting. For this group the correlation coefficient reveals a value of -0.3. Such a negative relation indicates that those not in the group have a high affirmative score strengthening the assumption that with increase in the level of income in the family, the affirmative score increases.

The affirmative score has a positive correlation with age. The correlation coefficient value of 0.37 indicates that with increasing age, there is a higher the affirmative score tends to be high as well. It can be said that as the college students get older, their perception about their

environment and level of knowledge changes and thus with greater awareness their affirmative score for willingness to comply increases as well.

Since different religious groups may have different ways of looking at issues it appeared significant to consider if there exists a correlation between religious groups and willingness to comply affirmative score. A dummy variable was constructed and all those who were Hindu were assigned a value of one and others were assigned a value of zero. A resultant correlation coefficient of -0.25 indicated a negative correlation between willingness to comply affirmative score and Hinduism. Since a dummy variable was created, such a value indicates that all those who are not Hindus have a high affirmative score. Such an analysis was done for Islam and Christianity creating dummy variables in a similar manner. However, the correlation value for Islam was not statistically significant. The correlation coefficient for Christianity and willingness to comply score yielded a positive correlation coefficient value of 0.22. This indicates that those who are Christians have a high willingness to comply score compared to other religions.

Table 4.13 shows that there is a weak but positive correlation (r-0.13) between self-rating of knowledge and willingness to comply with affirmative score. It can be concluded based on the value of the correlation coefficient (-0.16) that those who have a high willingness to comply affirmative score feel that they are less vulnerable since they are probably taking precautionary measures. Lastly, willingness to comply score is positively related to respondent perception of whether use of preventive measures would hamper their freedom. Thus the willingness to comply score is higher among those who think use of preventive measures would not hamper freedom.

It can be noted that the conclusions drawn from the contingency analysis match with the results obtained from the correlation analysis. Based on the contingency analysis, a positive relation can be expected between the efficiency of preventive measure score and affirmative

score for willingness to comply. A Pearson's correlation coefficient value of 0.44 confirms the expected positive relation. The contingency analysis indicates a negative relation between dummy variable for employment and willingness to comply score. The negative correlation coefficient between dummy variable for employment and affirmative score for willingness to comply indicates that the unemployed exhibit a greater willingness to comply. Those who are unemployed but are studying in college implies that they have means to support themselves. In such a case she is more dependent and under more control from parents or financial supporter, which may be the reason for this. In such a case she has less freedom to act according to her will.

From both the contingency and correlation analysis it is evident that with increase in monthly household income, willingness to comply increases as well. Age also appears to have a positive impact on willingness to comply score. In the analyses that have been performed attempting to find a relation between willingness to comply and religion, it can be concluded that religions other than Hinduism have shown a greater willingness to comply. As can be expected, both the contingency analysis and correlation analysis have revealed that those who have a high self rating of knowledge and low level of perceived vulnerability have a higher willingness to comply. Lastly, it can be noted that both the analyses that have been performed have indicated that those who perceive that use of preventive measures would not hamper freedom have a higher willingness to comply with the preventive measures. It is interesting to note that both the contingency analysis and the correlation analysis have identified the same variables as statistically significant.

Multivariate Analysis

The bivariate analyses demonstrated the relative importance of key individual variables as determinants of willingness to compliance with suggested preventive measure scores. The extent to which these variables are significant independent predictors of willingness score was assessed through the use of multiple regression models. Twelve independent variables selected for multiple regression analysis are shown in Table 4.14 along with selected descriptive statistics. Number in Table 4.14 implies the number of respondents who have responded to the question pertaining to the variable in the questionnaire.

Table 4.14 highlights that the mean age of the respondents is approximately 20 years. The respondents on an average perceive that they have a relatively high level of knowledge with a mean of 2.2. A mean value 0f -3.8 for self rating of vulnerability indicated that the respondents are of the opinion that they have a low level of vulnerability to the virus. Lastly, the average efficiency of preventive measure of the respondents is 30.41. A positive value indicates the possibility that the respondents think that it would be beneficial for them to use the preventive measures. As a result they might be willing to comply with the preventive measures.

One of the important assumptions of regression is that the relationship between dependent (y_i) and independent variables (x_i) is linear (Schroeder et al., 1986). In order to check this assumption, a series of scatter plots between the dependent variable and each of the independent variables have been constructed (Appendix – C). These scatter plots clearly suggest that all the independent variables are linearly related to the dependent variable.

Variable	Number	Range	Mean	Standard Deviation
Age	320	18 to 24	19.57	1.49
Dummy variable for Hindu	325	0 to 1	0.74	0.44
Dummy variable for income less than Rs 10,000	304	0 to 1	0.44	0.5
Living arrangement with family	354	0 to 1	0.85	0.36
Dummy variable for never married	341	0 to 1	0.97	0.17
Self rating of knowledge	354	-10 to 10	2.20	5.07
Self rating of vulnerability	354	-10 to 10	-3.81	5.96
Power to take decisions	336	0 to 1	0.85	0.35
Attendance in workshops	331	0 to 1	0.41	0.49
Perception of whether use of preventive measures would hamper freedom	332	0 to 1	0.83	0.37
Employment Status	330	0 to 1	0.14	0.35
Efficiency of preventive measures score	354	-100 to 100	30.41	26.43

Table 4.14 Simple statistical details of the variables that have been used in regression anakysis

Schroeder et al. (1986) have noted that for analyses in the field of social sciences regression analyses can run into the problem of multicollinearity where rather than being independent two or more variables used in the analysis are strongly correlated. They have noted that such multicollinearity is difficult to avoid in case of socio economic data. Mansfield and Helms (1982) are of the opinion that multicollinearity tests always need to be performed when a multiple regression analysis is done. Correlation analysis had been performed between the

independent variables to ensure that the possibilities of multicollinearity get detected early (Refer to Table 4.15). However correlation between the variables indicated weak inter relationships. Mansfield and Helms (1982) have considered the use of Variance Inflation Factor or VIF is as an indicator of whether multicollinearity exists. VIF provides an index that quantifies the magnitude by which variance of an estimated regression coefficient increases because of the existence of multicollinearity in the data. Studemund (2001) is of the opinion that a VIF value less than 5 indicates the absence of multicollinearity. In the multiple regression analyses that have been performed, the VIF value for all the variables in all the three selected models is close to 1 indicating an absence of multicollinearity between the variables. However, in order to avoid inclusion of three additional columns, the VIF values have not been included in Table 4.16. The VIF values have been tabulated in Appendix D. Table 4.14 has provided some simple statistical details of the variables that have been used in analysis.

From Table 4.15, it is evident that between the twelve variables that have been used in the correlation analysis, very little correlation that exists between the variables. Such a result establishes the fact that if regression analysis is run using these variables, then there is little scope for multicollinearity to exist. There appears to be a negative correlation between religion and age. There is a possibility that such a correlation is circumstantial. A positive correlation has been observed between employment status and household income less than Rs 10,000. This indicates that college students who belong to the lower income group have a higher tendency to join the work force. There is a positive correlation between attendance in workshops and self-perception of knowledge implying that those who have attended workshops think they are more knowledgeable. A negative correlation exists between efficiency score and monthly household income less than Rs 10,000. It means that those who belong to the higher income groups have a higher efficiency score. A positive correlation was noted in the analysis between employment

status and dummy variable created for those whose monthly household income was less than Rs 10,000. This indicated that those who were not affluent showed a greater tendency to join the workforce at an early age. In the correlation analysis between dummy variable created for Hindu and employment status a positive correlation signified that Hindus had a higher tendency to be employed. Dummy variable created for Christianity in the correlation analysis with dummy variable for employed revealed a negative correlation implying that religions other than Christianity had a higher tendency to be employed.

	1	2	3	4	5	6	7	8	9	10	11	12
1	1	-0.37	-0.21	0.03	-0.01	-0.07	-0.11	0.07	-0.01	0.2	-0.18	0.18
2	-0.37	1	0.15	0.05	-0.03	0.05	0.08	-0.05	0.01	-0.1	0.16	-0.13
3	-0.21	0.15	1	0.05	-0.06	-0.08	0.16	0.02	-0.06	-0.3	0.22	-0.28
4	0.03	0.05	0.05	1	-0.02	-0.01	-0.11	0.07	-0.05	0.03	0.05	0.07
5	-0.01	-0.03	-0.06	-0.02	1	-0.04	-0.09	-0.02	0.01	0.05	-0.09	0.08
6	-0.07	0.05	-0.08	-0.01	-0.04	1	0.03	0.01	0.29	-0.04	0.01	0.16
7	-0.11	0.08	0.16	-0.11	-0.09	0.03	1	0	-0.02	-0.18	0.07	-0.19
8	0.07	-0.05	0.02	0.07	-0.02	0.01	0	1	0.05	0.09	0	0.05
9	-0.01	0.01	-0.06	-0.05	0.01	0.29	-0.02	0.05	1	0	-0.08	0.1
10	0.2	-0.1	-0.3	0.03	0.05	-0.04	-0.18	0.09	0	1	-0.09	0.13
11	-0.18	0.16	0.22	0.05	-0.09	0.01	0.07	0	-0.08	-0.09	1	-0.08
12	0.18	-0.13	-0.28	0.07	0.08	0.16	-0.19	0.05	0.1	0.13	-0.08	1

Index

1. Age
2. Dummy variable for Hindu
3. Monthly Income less than Rs 10000
4. Living arrangement with family
5. Dummy variable for never married
6. Self rating for knowledge
7. Self rating for vulnerability
8. Power to take decisions
9. Attendance in workshops
10. Perception of whether use of preventive measures would hamper freedom
11. Employment Status
12. Efficiency of preventive measure score

Table 4.15 Pearson's correlation coefficients resulting from correlation analysis between variables used in regression analysis

In order to examine the effect of the variables considered in Table 4.15 on affirmative score for willingness to comply three types of regression analysis have been used. In Table 4.16 the results for three regression analyses that were performed have been presented. Model 1 represents simple multiple regression model, Model 2 represents best subset model of regression analysis and Model 3 represents step-wise multiple regression model.

In the first regression model attempts were made to understand the concurrent impact of the various variables on the dependent variable (affirmative score for willingness to comply) (Schroeder et al., 1986). For a complex behavior like willingness to comply, there are several variables that work simultaneously. Twelve variables have been considered for the analyses. The variables have been listed in Table 4.16.The second and third models are based on best subset and step-wise methods of multiple regression analysis, respectively. Therefore, there are two models, where only the independent variables with considerable influence on variation in dependent variables have been included. This method has been employed because bivariate analyses used in this chapter clearly suggest that all independent variables are not equally influential on the dependent variable.

Sirkin (1999) considers multiple regression analysis as the technique of developing predictive equations in cases where there are multiple variables present. The best subset method and the stepwise method are both improvements on the simple multiple regression. Berk (1978) supports the use of the best subset method for selecting predictor variables in a multiple regression. Here the output that is generated, tries the compare the resultant R^2 values by testing different combinations of the predictor variables and the variables finally selected are the ones that have the highest R^2.

In the step-wise multiple regression analysis the computer selects the best independent variable that can be used for predicting the behavior of the dependent variable. It then successively selects variables based on their relative importance. With each successive step the value of R^2 increases (Sirkin, 1999). The last step is normally user defined. In the analysis that has been performed here, only the variables that were statistically significant at the 0.15 level have been selected in the analysis. Berk (1978) is of the opinion that the step-wise method helps remove redundant variables.

In all the regression models the total number of observations considered for analysis is 232 which are different from the total number of respondents from whom data has been collected. This is because some respondents have refrained from answering some of the questions and regression analysis could not be done based on no responses. Thus only the respondents who have replied to all the questions that have been asked have been considered.

Parameter Estimates	**Simple**	**Best Subset**	**Step-wise**
Intercept	-0.45156	-0.38326	2.25413
Age	0.20049	0.20200	0.19915
Religion (Dummy variable for Hindu)	-0.76255*	-0.77096*	-0.80231*
Dummy variable for income less than Rs 10,000	-0.61284	-0.61038	-0.72406*
Dummy variable for living arrangement with family	-0.74114	-0.76939	-0.79935
Dummy variable for never married	2.34727	2.35211	-
Self rating of knowledge	0.03922	0.04361	-
Self rating of vulnerability	-0.01005	-	-
Power to take decisions	-0.65115	-0.66593	-0.72800
Attendance in workshops	0.16635	-	-
Perception of whether use of preventive measures would hamper freedom	1.10202*	1.12781*	1.00007*
Employment Status	-0.45094	-0.46590	-
Efficiency of preventive measures score	0.02328*	0.02393**	0.02576**
R^2	0.2705	0.2689	0.2556
F Ratio	6.77**	8.13**	10.99**
Number of observations	232		
* : Significant at 0.05 level of significance		** : Significant at 0.01 level of significance	

Table 4.16 Multiple regression analysis with affirmative score for willingness to comply as the dependent variable

The results presented in Table 4.16 show that all the selected regression models have almost the same R^2 value. This implies that all the three models have similar explanatory power. The numbers of the variables that have been used in the analyses however have varied. In the simple multiple regression model all the twelve independent variables have been listed after analysis. The best subset model for regression analysis enlisted ten of the initially selected twelve variables. In the step-wise regression analysis seven variables that had a probability value less than 0.15 have been included. All the partial regression coefficients in the three models have signs as predicted.

Schroeder et al. (1986) believe it is important to observe the F statistic before drawing conclusions from the regression analysis as the F statistic informs about the statistical significance of the model. In all three regression models the F value is statistically significant at the 0.01 level of significance (Table 4.16). However, none of the three models have high explanatory power because of their relatively low R^2 value. Although all the independent variables have been carefully selected based on existing literatures and the two theoretical models discussed in Chapter 3, because of the conservative Indian culture, some relevant questions related to sexual practices were not included. Scatter plots (shown in Appendix – C) clearly suggest that none of the independent variables incorrectly specified the relationship between the independent and dependent variables. However, Table 4.14 suggests that there is not much variation exists in most of the independent variables used in this study. This might be one possible reason for less explanatory power of the selected variables.

It is evident that the statistically significant variables that impact willingness to comply score do not vary much among the three regression models that have been presented in Table 4.16. In the first regression model, the statistically significant variables are religion, perception of whether use of preventive measures would hamper freedom and efficiency of preventive

measures score. Age with a probability value of 0.057 exhibits a borderline level of significance. From the second regression model it can be concluded that the statistically significant variables that impact affirmative score for willingness to comply are religion, perception of whether use of preventive measures would hamper freedom and efficiency of preventive measures score. Here also age exhibits a borderline level of statistical significance. The statistically significant variables that have evolved from the third model of regression analysis shown in Table 4.16 are religion, dummy variable for monthly household income less than Rs 10,000, perception of whether use of preventive measures would hamper freedom and efficiency of preventive measures score. Age in this case also exhibits a borderline level of statistical significance.

In all of the three regression models perception of whether use of preventive measures would hamper freedom was a statistically significant variable. From Social Learning Theory it is evident that human beings make decisions based on perceived benefits and costs associated with taking any decision. Thus, it can be concluded that respondents would not take part in positive health behavior unless they believed that the benefits outweighed the costs. As a result it was significant to ask the respondents if use of preventive measures would reduce their freedom as if they were a threat to freedom they would act as an obstacle in the path of the respondent's willingness to comply. In all the three regression models, the efficiency of preventive measures score has been considered statistically significant.

The dummy variable for household income less than Rs 10,000 per month appears as a statistically significant variable only in the step-wise model of (Table 4.16). The parameter estimate value for this variable is -0.72 which implies that there is a negative relation that exists between those with household income less than Rs 10,000 and affirmative score for willingness to comply. This implies that those belonging to higher household income groups exhibit a greater willingness to comply. Age is another factor that barely qualifies as statistically significant in all

the three regression models and has a positive correlation with willingness to comply affirmative score. This implies that with an increase in age, the respondents have shown a greater eagerness to comply with more of the prescribed preventive measures.

The response for willingness to comply that the individual has provided is a reflection of the environment the individual has grown up in, the amount of information available to her as well as her perceived vulnerability to the virus. Based on the standardized b values (β) that can be obtained from Model 1 it can be concluded that of all the variables efficiency of preventive measures scores (β = 0.237) has the highest effect on willingness to comply affirmative score followed by perception of whether use of preventive measures would hamper freedom (β = 0.147) and religion (β = - 0.135). Based on the standardized estimate values, self rating of vulnerability is the least effective variable. From Model 2 it can be concluded that efficiency of preventive measures score has the most effect on willingness to comply score (β = 0.244). Perception of whether preventive measures would hamper freedom and religion rank second and third with standardized estimate values of 0.15 and -0.14 respectively. From Model 2 it can be concluded that marital status and employment status have the least effect on willingness to comply.

Using the standardized b values for independent variables in Model 3 it can be concluded that efficiency of preventive measure score has the highest effect on willingness to comply score with a standardized estimate value of 0.262. Income and religion are the second and third most influential variables with standardized estimate values of -0.143 and -0.141 respectively. Perception of whether use of preventive measures would hamper freedom is the fourth ranking variable with a standardized estimate value of 0.133. If all the variables that have been used in Model 3 are considered then it can be concluded that power to take decisions is the variable that has the least impact on willingness to comply score.

The variables that emerge as statistically insignificant in the multiple regression analyses were, living arrangement with family, employment status, marital status, self rating of vulnerability, self rating of knowledge, attendance in workshops and power to take decisions. It can however be mentioned that the relation between the dependent variable (affirmative score for willingness to comply) and the statistically significant independent variables have revealed some thought provoking results. While it is expected that with increase in income levels, the willingness to comply would increase it is interesting to note that religion has a role to play with regard to willingness to comply. The fact that Hindus show lesser willingness to comply than the Muslims or Christians was an unexpected finding. The normally expected hierarchy is that Christians would be more willing to comply followed by Hindus and then Muslims. The results could have revealed this pattern since the study group involves college going students and the common notion is that women who are from progressive Muslim families get to opt for higher education. It is however expected that those who have a higher efficiency of preventive measure score will be more willing to comply and thus a positive relation between the two variables is not a surprise. Since people are more open to adopting measures that present the least obstacles it is not alarming that perception of whether use of preventive measures would hamper freedom and willingness to comply score exhibit a positive relation.

The two models that have guided this research are Health Belief Model (HBM) and Social Learning Theory (SLT). The HBM believes that perceived susceptibility and perceived severity influence a person's belief in the amount of threat from the possible disease (Stroebe and de Wit, 1996). Perceived effectiveness from a health related preventive measure is the difference between the perceived benefits and perceived barriers. Based on the regression analyses it is evident that the affirmative score for willingness to comply with a preventive measure is dependent on variables like age, religion, income, efficiency of preventive measures

score and perception of whether use of preventive measures would hamper freedom. As a result it can be concluded that the findings of this research agree with the HBM and here decisions concerning positive health behavior takes place in the manner predicted by the model.

The other theoretical model that has been made use of to predict factors determining positive health behavior is SLT. From the correlation analyses that have been performed between affirmative score for willingness to comply and the various sources of information it is evident that the sources of information that have a positive correlation with affirmative score for willingness to comply are newspapers, television, radio, pamphlet, billboards, calling Buladi, and books. People who are present in the immediate environment of the respondents are commonly referred to for information. There is a strong positive correlation between the people referred and willingness to comply. Of the people in the immediate environment discussions with fathers, siblings and medical practitioners seem to encourage positive health behavior in respondents. Attendance in workshops is another factor that has a strong positive correlation with the affirmative score for willingness to comply. Thus it is evident that learning experience has a role to play in decision making of individuals. The respondents' self rating of knowledge is also a result of her learning experience.

The efficiency of preventive measures score used in this study reflects the respondents perceived benefits from using a preventive measure. This score takes into account the perceived costs and benefits of using that measure. Perception of whether the use of preventive measures would hamper freedom is another variable that has been used that can look into perceived costs associated with using preventive measures. It is evident from the regression analyses that the efficiency of preventive measure score and perception of whether use of preventive measures would hamper freedom have a statistically significant impact on the individuals' decision making abilities. Attendance in workshops however was not a statistically significant variable when used

in the multiple regression analyses that were performed. Thus the SLT appears to be very relevant to this research.

In the forthcoming chapter an attempt will be made to summarize the research and integrate the results that have been obtained from the analyses. Attempts will be made to evaluate and ensure that the basic aims of the research have been met and all the questions that were raised in the research have been answered. Possible drawbacks in the existing awareness campaigns will be identified. Attempts will also be made to make recommendations that can benefit HIV/AIDS awareness campaigns.

CHAPTER 5 - Conclusion

This chapter summarizes the findings of this study as well as identifies the limitations of the study and provides recommendations including ways to improve the existing awareness promotion campaigns. The primary objectives of this study have been to understand the perceptions of HIV risk and preventive measures by college students in Kolkata, India and to identify the factors that influence willingness to comply with HIV/AIDS preventive measures. The various sources of information that the respondents have made use of have also been highlighted in the study. The age group that was considered for analysis is 18–24 years. Primary data was collected by means of a questionnaire survey following Institutional Review Board (IRB) regulations. Three hundred and fifty four college students have been surveyed for the purpose of this research.

In addition to the questionnaire survey, several physicians practicing in Kolkata and dealing with HIV/AIDS patients were interviewed. They have coordinated workshops aimed at generating HIV/AIDS awareness. Principals of the colleges where the survey was conducted were also interviewed in order to gain an insight into their opinions about the disease and level of awareness amongst the youth.

Summary

As indicated, the primary means by which HIV/AIDS spreads are through sexual means, parent to child transmission, sharing of needles and through blood transfusion. This study found that 90% of all the respondents identified unprotected sex as the major mode of HIV

transmission followed by blood transfusion (75%), sharing needles or syringe (65%) and parent to child transmission (49%). With regard to the respondent knowledge concerning HIV AIDS preventive measures, 89% of all the respondents chose use of condoms, 69% opted for testing blood prior to blood transfusion, 51% opted for getting regular checkups.

When the respondents were asked about the various sources of information that they make use of to gain information pertaining to the HIV/AIDS, 84% considered television as an important source of information. Newspapers and magazines were selected a source of information by 74% of the respondents and medical practitioners were considered a valuable source of information by 61% of the respondents. Pamphlets and billboards were considered as the least important sources of information. From the correlation analysis it can be concluded that selection of pamphlets, billboards, workshops and seminars, books and medical practitioners as sources of information, positively correlated with willingness to comply. There is however a statistically significant positive correlation between those who think television is a significant source of information and their identification of preventive measure score. It can thus be concluded that people often passively learn from their environment even without realizing or playing an active role.

Forty eight percent of the respondents reported that they referred to people in their immediate environment for information pertaining to HIV/AIDS. While 61% of the respondents mentioned that they considered doctors as significant sources of information, 84% of the respondents mentioned that they felt most comfortable discussing the disease with their friends. Fifty eight percent of the respondents felt that they were comfortable discussing the disease with their mother while 50% of the respondents revealed their discomfort in discussing the disease with their fathers.

Workshops have been considered as a significant means by which information pertaining to the disease can be spread. The contingency analysis reveals that those who have attended workshops have shown a greater willingness to comply with the preventive measures. Fifty five percent of the respondents have considered workshops and seminars as a significant source of information. The effectiveness of workshops and seminars have been confirmed by the correlation analysis where there has been found statistically significant correlations between those who have selected workshops and seminars as a source of information and their affirmative scores for willingness to comply. In the multiple regression analyses, attendance in workshops is not a statistically significant variable. The importance of workshops in generating HIV/AIDS awareness can however not be denied.

In order to gain understanding of the factors that influence willingness to comply with HIV/AIDS preventive measures respondents were asked if they were willing to comply with the various prescribed preventive measures or not. Attempts have been made to relate employment status with willingness to comply. From the contingency analysis it was found that those who were employed had a lower score than those who were unemployed. Of the employed, only 4% had a score between 8 and 11 (which was the highest score bracket). Employment status was used in correlation analysis which revealed that there were significant negative correlations between the variable and affirmative score for willingness to comply. The result indicated that the unemployed had greater willingness to comply. Employment status was however not a statistically significant variable in determining the willingness to comply score of individuals as shown in the regression analyses that have been performed.

A negative correlation evolved in the regression analysis between dummy variable for household income less than Rs 10,000 per month and willingness to comply score. From the step-wise regression analysis it is evident that monthly household income less than Rs 10,000

had statistically significant impact on the affirmative score for willingness to comply. From the parameter estimate a negative relation is noted implying that other income groups had a higher tendency of being willing to comply. A positive correlation resulted from an analysis between those who were in the income group with a household income greater than Rs 50,000 per month and willingness to comply.

Willingness to comply has a negative correlation with those who follow Hinduism as a religion. In the regression analyses religion came up as a statistically significant variable. A negative relation indicates that religions other than Hinduism have a high willingness to comply. Willingness to comply is positively correlated with age while there is a negative correlation between self rating of vulnerability and willingness to comply. It is possible that since the respondents are willing to comply with the preventive measures, they feel that their level of vulnerability is low. However, self rating for vulnerability does not have a statistically significant influence on the affirmative score for willingness to comply as indicated by the regression analyses. A positive correlation was noted between self rating of knowledge and affirmative score for willingness to comply. In the regression analyses, self rating of knowledge was not a statistically significant variable. Power to take decisions was however found to have no statistically significant impact on the affirmative score for willingness to comply.

A correlation between respondent perception of whether use of preventive measures would hamper freedom and willingness to comply reveals that there is a strong positive relationship between them. In the regression analyses as well it was found to be a statistically significant variable. Such a result is expected. If the respondents perceive any hardships associated with using preventive measures, then there is a greater chance for them to feel discouraged about using those measures. Since most of the respondents do not think use of

preventive measures would hamper freedom there is a greater possibility that they would employ positive health behavior.

The efficiency of preventive measure score appeared as a very important determinant of respondents' willingness to comply score. In the correlation analyses that were performed a positive strong positive correlation has been noted between willingness to comply and efficiency of preventive measure score. In the regression analyses as well this variable was a statistically significant variable in determining affirmative score for willingness to comply.

Limitations

This study suffers from several shortcomings. In preparing and conducting the survey importance had to be given to the Indian culture to ensure that the respondents would not feel uncomfortable about the questions that were asked in the questionnaire. Unlike Jurich et al. (1992), who conducted a similar study among college students in USA, this study could not include questions about degree of romantic involvement, number of sexual partners, engagement of pre sex discussions, and frequency of contraceptive use. It would not have been culturally acceptable to take part in discussions about such topics. Many students refused to participate in the questionnaire survey. Reluctance was noted among those who participated, with regard to answering the questionnaire even though it was anonymous. As a result, of the 354 questionnaires only 232 were completely answered. Obtaining permission from the college authorities to conduct my research took considerable amount of time. In some cases permission was denied. Due to time and financial constraints it was possible to conduct the surveys only in five colleges. Lastly, the length of the questionnaire was also a cause of concern for a considerable number of respondents.

Recommendations

Based on the research that was conducted there are a number of conclusions emerge that can be drawn as well as recommendations. Contrary to the respondent opinion that television is the most significant source of information, it is evident that newspapers, books, pamphlets and billboards are most successful in generating awareness. The current HIV/AIDS campaigns of West Bengal government have totally ignored the role the colleges can play in strengthening the quality and coverage of HIV prevention programs. This study clearly suggests that colleges can contribute significantly in the prevention program by organizing workshops and other activities which will keep HIV prevalence and incidence low. In addition to college students, guardians need to be encouraged to attend such workshops and an attempt needs to be made in these workshops to increase parent child interactions.

The colleges can also organize movie shows for all students and screen movies about HIV/AIDS having handouts associated with the information. Discussion sessions organized after such sessions might be helpful in ensuring that queries of the attendees are answered. Students have mentioned that they would like to have sessions where they can anonymously get their HIV/AIDS pertaining questions answered by knowledgeable professionals. Many have noted the lack of interactive sessions but the key to getting more students involved would be to maintain anonymity of those who ask questions. Parents need to be actively involved in the workshops. It is only then that they will realize the academic aims of the organized workshops and might not object if such workshops are organized.

Several programs targeting HIV/AIDS awareness consider removal of stigma, alleviation of poverty and the need for education as issues that are indirectly related to HIV/AIDS spread and awareness. Along with such a target, the organizations need to educate parents and attempt

to alter the existent mindset in order to ensure that positive health behavior becomes a habit rather than something that is imposed. Dr Ayesha Chaudhuri mentioned that since national television advertises the use of condoms as part of family planning campaigns and HIV awareness campaigns many people get trapped into thinking that use of contraceptive medicines would prevent the spread of the virus as well. Campaigns thus need to ensure that such erroneous beliefs are reduced and the aims of the campaigns need to be made clear. Although the respondents are fairly aware of the modes of HIV transmission and prevention measures, the campaign should encourage young women towards making positive changes in sexual behavior, such as increased use of condoms and delay in sexual debut. This is particularly necessary because of the consistent decline of the extended family structures, weakening family values and moral bindings among Indian adolescents.

Further, communication between family members needs to be encouraged. In the Indian culture, man-woman interaction is limited, which increases risk of HIV infection. The study revealed that most of the respondents were uncomfortable talking about sexual problems with their fathers. Since a positive correlation has been noted, those who asked their fathers for information and their affirmative score for willingness to comply it is critical that girls are encouraged to seek paternal guidance on such issues. A negative correlation between those who ask their mothers for help and their willingness to comply score indicates that there is a possibility that their mothers might also have been protected from information pertaining to the disease. As a result, they were unable to inform their children when they were referred to. This strengthens the belief that female students need to get access to relevant information since they are the future mothers. In future, they will be the ones being referred to by their daughters for information. Another reason why awareness generation needs to be encouraged at the college level is because those who have joined the workforce have shown a low level of willingness to

comply with the preventive measures. If they are made aware before they take part in reckless behavior then they might make a conscious decision rather than an ignorant choice.

Along with these recommendations, it is significant to mention here that it needs to be insisted that men and women should find out about the past relationship history of their spouses before trusting their spouses. Getting HIV tests done prior to marriage needs to be encouraged as well. If the stigma associated with the disease can be removed then people might consider it as a normal test and be more willing to be tested. There is a lot of scare associated with being aware that a person is a carrier of the virus and alters his or her life along with people's reactions to them. Most of the students who were asked said that they were scared to be tested and thought that it was better to think that they were healthy rather than be tested and proved otherwise. Some of the students mentioned that they were scared of the associated repercussions. It maybe for this phobia associated with getting tested that Dr Tridip Mitra Mustafi mentioned that in antenatal clinics pregnant women are tested by default for HIV unless they opt out of it.

The study is a feedback mechanism for the ongoing AIDS awareness programs in West Bengal. The success of the ongoing awareness campaigns cannot be denied since most of the respondents have been able to identify the primary means by which the disease can spread. The high level of willingness to comply that has been noted can also be considered a result of successful AIDS awareness campaigns. The quality and quantity of information available to the students however needs to be improved since not all of the respondents were able to correctly identify the means by which the disease can spread. Existence of misconceptions like the disease can spread through mosquito bites, sharing lavatories, public spaces and food need to be addressed since they lead to disease related stigma.

While 90% of the respondents were aware of the spread of the disease through sexual means only 24% were aware that the disease could spread through breast feeding. It is thus

important that the state government tries to provide a holistic picture in the campaigns. The fact that delay in sexual debut can led to a reduction in the level of vulnerability to the disease needs to be propagated in order to prevent students from contacting the disease by engaging in reckless behavior at an early uninformed age. Currently students are not forced to attend awareness campaigns. As a result it is only those who are interested that get access to information. The State government needs to ensure that knowledge of diseases like HIV is introduced as part of the curriculum to ensure that more of the students gain access to information.

From an academic perspective this research is significant since the perceptions of the college students in Kolkata have never been studied before. This study not only highlights the perceptions of the college students but also tried to understand factors that control their willingness to comply to the preventive measures. Since compliance cannot be forcibly enforced, factors influencing willingness thus become a very significant subject of study. Since different factors simultaneously operate in different cultures and among different age and gender groups, the significance of the conclusions drawn from this study as well as the recommendations that have been made cannot be denied.

As a continuation of this study, in future I plan to look at possible spatial differences in perception among college students with regard to HIV vulnerability and factors influencing differences if they are found to exist. Also attempts will be made to study willingness to comply of females before and after attendance in workshops in order to see if workshops can encourage positive health behavior. I also plan to study factors determining the efficiency of preventive measure score of college students.

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Appendix A - Questionnaire

Perceptions of HIV / AIDS Risk and Preventive Measures among Female Students in Kolkata, India

Serial Number _____

Identify the modes of HIV / AIDS transmission.

SRL NO.	MODES OF TRANSMISSION	TICK MARK
1	MOSQUITO BITE	
2	SHARING RAZORS	
3	CASUAL TOUCH	
4	SHARING TOOTH BRUSH	
5	SEX WITHOUT PROTECTION	
6	MOTHER TO FOETUS	
7	SHARING FOOD OR CUPS	
8	SHARING CLOTHES	
9	BREAST FEEDING	
10	COUGHING OR SNEEZING	
11	SHARING PUBLIC PLACES, WORK SPACES OR HOUSES	
12	SHARING NEEDLE OR SYRINGE	
13	BLOOD TRANSFUSION	
14	SHARING LAVARATORIES	
15	IV DRUG USE	
16	BLOOD DONATION	
17	OTHER – SPECIFY	

What according to you are the most effective sources of information about the disease and virus (Give a tick mark near the correct option and rate it on a scale of 1 – 10 where 1= most effective and 10 = least effective)

SRL NO.	SOURCES OF INFORMATION	TICK MARK	RATING 1 – 10
1	NEWSPAPERS AND MAGAZINES (articles and columns like A.S.K , where questions regarding HIV, AIDS and STD are answered		
2	TELEVISION		
3	RADIO		
4	PAMPHLETS		
5	BILLBOARDS		
6	CALLING *"BULADI"* (AND OTHER CALL CENTERS WHERE QUESTIONS CAN BE ASKED WITH THE OPTION OF HAVING IDENTITIES KEPT SECRET)		
7	PARENTS, RELATIVES, TEACHERS AND FRIENDS		
8	WORKSHOPS AND SEMINARS BY GOVERNMENTAL AND NON GOVERNMENTAL ORGANISATIONS		
9	INFORMATIVE BOOKS		
10	DOCTORS, NURSES, PHARMACISTS		
11	OTHER – SPECIFY		

Identify the Preventive Measures

SRL NO.	MODES OF PREVENTION	TICK MARK
1	AVOIDING MOSQUITO BITES	
2	ABSTAIN FROM SEXUAL RELATIONSHIPS	
3	USE OF CONDOMS	
4	AVOID SHARING NEEDLE AND SYRINGE	
5	AVOID IV DRUG USE	
6	DELAY SEXUAL DEBUT	
7	SEPARATE LAVARATORIES FOR HIV INFECTED	
8	CHECKING BLOOD FOR THE VIRUS BEFORE TRANSFUSION	
9	EDUCATION ABOUT SEXUALLY TRANSMITTED DISEASE (STD), HIV AND AIDS	
10	SCOPES FOR DISCUSSION WITH PEOPLE IN AUTHORITY OR KNOWLEDGEABLE PEOPLE	
11	QUERY ANSWERING COLUMNS IN NEWSPAPERS AND MAGAZINES	
12	GETTING REGULAR CHECKUPS FOR THE VIRUS	
13	STOP PEOPLE WITH AIDS FROM ATTENDING SCHOOLS AND WORK PLACES	
14	AVOID SHARING FOOD	
15	OTHER – SPECIFY	

Identify and Rate the Efficiency and Benefits of some of the Preventive Measures. (Mark the incorrect preventive measures as no effect and the efficiency level for relevant preventive measures as high or low depending on your discretion.)

SRL NO.	MODES OF PREVENTION	VERY HIGH	HIGH	NO BENEFIT	LOW	VERY LOW
1	ABSTAIN FROM SEXUAL RELATIONSHIPS					
2	USE OF CONDOMS					
3	AVOID SHARING NEEDLE AND SYRINGE					
4	AVOID IV DRUG USE					
5	DELAY SEXUAL DEBUT					
6	CHECKING BLOOD FOR THE VIRUS BEFORE TRANSFUSION					
7	EDUCATION ABOUT SEXUALLY TRANSMITTED DISEASE (STD), HIV AND AIDS					
8	SCOPES FOR DISCUSSION WITH PEOPLE IN AUTHORITY OR KNOWLEDGEABLE PEOPLE					
9	QUERY ANSWERING COLUMNS IN NEWSPAPERS AND MAGAZINES					
10	GETTING REGULAR CHECKUPS FOR THE VIRUS					

Are you willing to comply with the popularly recommended HIV / AIDS prevention measures?

SRL NO.	MODES OF PREVENTION	YES	NO	UNDECIDED
1	ABSTAIN FROM SEXUAL RELATIONSHIPS			
2	USE OF CONDOMS			
3	AVOID SHARING NEEDLE AND SYRINGE			
4	AVOID IV DRUG USE			
5	DELAY SEXUAL DEBUT			
6	CHECKING BLOOD FOR THE VIRUS BEFORE TRANSFUSION			
7	EDUCATION ABOUT SEXUALLY TRANSMITTED DISEASE (STD), HIV AND AIDS			
8	SCOPES FOR DISCUSSION WITH PEOPLE IN AUTHORITY OR KNOWLEDGEABLE PEOPLE			
9	QUERY ANSWERING COLUMNS IN NEWSPAPERS AND			

	MAGAZINES			
10	GETTING REGULAR CHECKUPS FOR THE VIRUS			
11	OTHER - SPECIFY			

With whom are you most comfortable with regard to discussing about HIV / AIDS?

Srl No	Person	Most comfortable	No idea	Not comfortable
1	Mother			
2	Father			
3	Siblings			
4	Other relatives			
5	Teacher			
6	Friends			
7	Newspaper query columns			
8	Call centers set up for query handling			
9	Doctors			
10	Representatives of Governmental and Non Governmental Organizations holding workshops and seminars			
11	Other - specify			

Have you ever attended an AIDS awareness seminar or workshop? Yes _____; No _____

How high would you rate your knowledge about the disease (circle the correct option)?

A. Very High B. High C. Moderate D. Low E. Very Low

How high would you rate your vulnerability to the disease or how much at risk do you think you are from contracting the disease? (Circle the correct option)

A. Very High B. High C. Moderate D. Low E. Very Low

How efficient do you think the below mentioned factors are in ensuring compliance to the HIV / AIDS prevention measures?

Srl No	Factors	Very High	High	No idea	Low	Very Low
1	Age					
2	Gender					
3	Level of education					
4	Religion					
5	Level of Household Income					
6 a	Living Arrangement with family					
6 b	Living alone in an apartment or house					
6 c	Living with friends, as paying guest or in a hostel					
7	Access to media – all types					
8	Power to take decisions with regard to compliance to HIV / AIDS prevention measures					
9 a	Employment status: Employed					
9 b	Employment status: Unemployed					
10	Possibility of easily accommodating the preventive measures without requiring major lifestyle changes					

Age in years : _____ years

Are you currently employed? (circle the correct option)

A. Employed B. Unemployed

Marital Status (circle the correct option) :

A. Never Married B. Married C. Divorced D. Widowed

Level of household income <u>per month</u> (value in Rs) – (circle the correct option)

A. Less than 10,000 B. 10,000 – 24,999 C. 25,000 – 49,999 D Above 50,000

Religion : _____

Living arrangement: (circle the correct option)

A. With Family B. Alone in an apartment or house C. Living with friends, as a paying guest or in a hostel

Do you have the power to make decisions with regard to your own health or the health of the family? (circle the correct option)

A. Yes B. No

Would you be open adopting the preventive measures?

A Yes B. No

How likely do you think you are in contracting the disease : (circle the correct option)

A. Very High B. High C. Low D. Very Low

At what age do you think people should be made aware of AIDS? _____ years

To what extent do you think you will be able to adopt the preventive measures? (circle the correct option)

A. Very Likely B. Likely C. Unlikely D. Absolutely Impossible

Do you think the adopting preventive measures would hamper your freedom in life? (circle the correct option)

A. Yes B. No

How much do you care about or are driven by others opinions with regard to your decision to adopt preventive measures or refrain from using the same? (circle the correct option)

A.Very High B. High C. Low D. Very Low

How according to you can the HIV / AIDS awareness campaigns be improved?

Appendix B - Database

Srl Nos	Sum of affirmative replies	Category of Yes answers	Efficiency and Benefits Score	Living arrangement		Religion	Dummy variable for never married
				with friends as paying guest or in a hostel	with family		
1	7	Group 2	5	0	1	Hindu	1
2	7	Group 2	45	0	1	Muslim	1
3	8	Group 3	50	0	1	.	1
4	8	Group 3	50	1	0	.	1
5	6	Group 2	10	0	1	Hindu	1
6	7	Group 2	65	0	1	Hindu	1
7	8	Group 3	0	1	0	Muslim	1
8	8	Group 3	25	0	1	Christian	1
9	6	Group 2	45	0	1	Hindu	1
10	7	Group 2	40	0	1	Hindu	1
11	10	Group 3	90	0	1	Christian	1
12	6	Group 2	60	0	1	Christian	1
13	7	Group 2	65	0	1	Christian	1
14	8	Group 3	70	0	1	Hindu	1
15	5	Group 2	-20	0	1	Hindu	1
16	5	Group 2	30	0	1	Muslim	1
17	7	Group 2	55	0	1	Hindu	1
18	3	Group 1	55	0	1	Muslim	1
19	6	Group 2	20	0	1	Hindu	1
20	5	Group 2	35	0	1	.	1
21	6	Group 2	30	0	1	Muslim	1
22	5	Group 2	20	0	1	Christian	1
23	9	Group 3	80	0	1	Hindu	1
24	5	Group 2	45	0	1	.	1
25	8	Group 3	70	0	1	Hindu	1
26	7	Group 2	50	0	1	Christian	0
27	6	Group 2	50	0	1	Hindu	1
28	7	Group 2	50	0	1	Hindu	1
29	8	Group 3	25	0	1	Christian	1
30	10	Group 3	70	0	1	Hindu	1
31	6	Group 2	70	0	1	Hindu	1
32	5	Group 2	40	0	1	Hindu	1
33	5	Group 2	35	0	1	Hindu	1
34	6	Group 2	45	0	1	Muslim	1

35	7	Group 2	60	0	1	Hindu	1
36	9	Group 3	55	0	1	Hindu	1
37	9	Group 3	70	0	1	Christian	1
38	6	Group 2	20	0	1	Christian	1
39	8	Group 3	25	1	0	Hindu	1
40	6	Group 2	15	0	1	Hindu	1
41	8	Group 3	65	0	1	Hindu	1
42	6	Group 2	45	0	1	Muslim	1
43	7	Group 2	50	0	1	Muslim	1
44	7	Group 2	80	0	1	Christian	1
45	7	Group 2	75	0	1	Christian	1
46	0	Group 1	0	0	1	Hindu	1
47	0	Group 1	0	0	1	Muslim	1
48	9	Group 3	75	0	1	Hindu	1
49	8	Group 3	75	0	1	Hindu	1
50	5	Group 2	70	0	1	Hindu	1
51	7	Group 2	40	0	1	Christian	1
52	7	Group 2	75	0	1	Hindu	1
53	7	Group 2	75	0	1	Hindu	1
54	4	Group 2	10	0	1	Christian	1
55	7	Group 2	35	0	1	Christian	1
56	7	Group 2	40	1	0	Christian	1
57	7	Group 2	70	0	1	Christian	1
58	8	Group 3	60	0	1	.	1
59	7	Group 2	45	0	1	Christian	1
60	5	Group 2	45	0	1	Hindu	1
61	7	Group 2	10	0	1	Hindu	1
62	6	Group 2	20	0	1	Muslim	1
63	8	Group 3	55	0	1	.	1
64	7	Group 2	45	0	1	Hindu	1
65	6	Group 2	35	0	1	Christian	1
66	6	Group 2	55	0	1	Christian	1
67	9	Group 3	25	0	1	Christian	1
68	5	Group 2	70	0	1	Christian	1
69	6	Group 2	10	0	1	Muslim	1
70	8	Group 3	15	0	1	.	1
71	8	Group 3	40	0	1	Muslim	1
72	6	Group 2	10	0	1	Hindu	1
73	7	Group 2	80	0	1	Hindu	1
74	7	Group 2	55	1	0	Christian	1
75	8	Group 3	65	0	1	Christian	1
76	7	Group 2	0	0	1	Christian	1
77	4	Group 2	0	0	1	Christian	1
78	0	Group 1	20	0	0	Christian	1
79	6	Group 2	0	0	1	Christian	1
80	2	Group 1	30	0	1	Hindu	1
81	5	Group 2	30	0	1	Hindu	1

82	8	Group 3	80	0	1	Christian	1
83	7	Group 2	50	0	1	Christian	1
84	8	Group 3	50	0	1	Muslim	1
85	7	Group 2	30	0	1	Christian	1
86	7	Group 2	65	0	1	Christian	1
87	10	Group 3	30	1	0	Christian	1
88	8	Group 3	35	0	1	Christian	1
89	2	Group 1	45	0	1	Christian	1
90	5	Group 2	25	1	0	Christian	1
91	5	Group 2	30	0	1	Christian	1
92	7	Group 2	40	0	1	Muslim	1
93	7	Group 2	45	1	0	Christian	1
94	6	Group 2	30	0	0	.	1
95	8	Group 3	45	0	1	Muslim	1
96	6	Group 2	35	0	1	Hindu	1
97	6	Group 2	45	0	1	Hindu	1
98	10	Group 3	25	0	1	Christian	1
99	6	Group 2	50	0	1	Hindu	1
100	5	Group 2	35	0	1	Hindu	1
101	7	Group 2	25	0	1	Christian	1
102	6	Group 2	45	0	1	Hindu	1
103	7	Group 2	30	0	1	Hindu	1
104	7	Group 2	45	0	1	Hindu	1
105	6	Group 2	50	0	1	Muslim	1
106	9	Group 3	45	0	1	Hindu	1
107	8	Group 3	0	0	1	Muslim	1
108	7	Group 2	25	0	1	Hindu	1
109	7	Group 2	55	0	1	Hindu	1
110	6	Group 2	25	1	0	Hindu	1
111	5	Group 2	30	0	1	Hindu	1
112	6	Group 2	50	0	1	Hindu	1
113	9	Group 3	70	0	1	Hindu	1
114	7	Group 2	40	0	1	Hindu	1
115	9	Group 3	70	0	1	Hindu	1
116	4	Group 2	45	0	1	Hindu	1
117	4	Group 2	40	0	1	Hindu	1
118	11	Group 3	55	0	1	Christian	1
119	7	Group 2	55	1	0	Hindu	1
120	8	Group 3	65	1	0	Hindu	1
121	8	Group 3	60	0	1	Hindu	1
122	8	Group 3	70	0	1	Hindu	1
123	7	Group 2	40	0	1	Hindu	1
124	8	Group 3	45	0	1	Christian	1
125	7	Group 2	75	1	0	Christian	1
126	6	Group 2	30	0	1	Hindu	1
127	8	Group 3	55	0	1	Christian	1
128	9	Group 3	55	0	1	Hindu	1

129	3	Group 1	20	1	0	.	1
130	6	Group 2	60	0	1	Hindu	1
131	10	Group 3	75	0	1	.	1
132	7	Group 2	75	0	1	Hindu	1
133	7	Group 2	65	0	1	Hindu	1
134	4	Group 2	60	0	1	Hindu	1
135	9	Group 3	15	1	0	Muslim	1
136	9	Group 3	70	1	0	Hindu	1
137	5	Group 2	45	0	1	Hindu	1
138	6	Group 2	15	0	1	Hindu	1
139	8	Group 3	70	0	1	Hindu	1
140	0	Group 1	25	0	1	Hindu	1
141	6	Group 2	20	0	1	Hindu	1
142	8	Group 3	50	0	1	Muslim	1
143	6	Group 2	-15	1	0	Hindu	1
144	6	Group 2	70	0	1	Hindu	1
145	0	Group 1	35	0	1	Hindu	1
146	7	Group 2	30	1	0	Hindu	1
147	8	Group 3	20	1	0	Hindu	1
148	4	Group 2	45	1	0	Hindu	1
149	6	Group 2	10	0	1	Hindu	1
150	6	Group 2	10	0	1	Hindu	1
151	8	Group 3	50	0	1	Hindu	1
152	7	Group 2	45	0	1	.	1
153	7	Group 2	55	0	1	Hindu	1
154	9	Group 3	35	1	0	Hindu	1
155	7	Group 2	45	0	1	Hindu	1
156	8	Group 3	55	0	1	Hindu	1
157	8	Group 3	50	1	0	Hindu	1
158	6	Group 2	65	0	1	Hindu	1
159	4	Group 2	50	0	1	Hindu	1
160	5	Group 2	10	0	1	Hindu	1
161	7	Group 2	40	0	1	Hindu	1
162	7	Group 2	45	1	0	Hindu	1
163	6	Group 2	10	0	1	Hindu	1
164	6	Group 2	25	1	0	Hindu	1
165	7	Group 2	45	0	1	Hindu	1
166	0	Group 1	-60	0	1	Hindu	.
167	4	Group 2	75	0	1	Hindu	1
168	1	Group 1	40	0	1	Hindu	1
169	5	Group 2	15	0	1	Hindu	1
170	7	Group 2	55	0	1	Hindu	1
171	5	Group 2	45	0	1	Hindu	1
172	5	Group 2	50	1	0	Hindu	1
173	5	Group 2	50	1	0	Hindu	1
174	6	Group 2	50	0	1	Hindu	1
175	6	Group 2	50	0	1	Hindu	1

176	0	Group 1	30	0	1	Hindu	0
177	6	Group 2	40	0	1	Hindu	1
178	6	Group 2	45	0	1	Hindu	1
179	5	Group 2	45	0	1	Hindu	1
180	7	Group 2	0	0	1	Hindu	1
181	0	Group 1	0	0	1	Hindu	1
182	6	Group 2	45	0	1	Hindu	1
183	2	Group 1	25	0	1	Hindu	1
184	3	Group 1	15	0	1	.	1
185	2	Group 1	25	0	1	Hindu	1
186	2	Group 1	25	0	1	Hindu	1
187	3	Group 1	25	0	1	Hindu	1
188	0	Group 1	5	0	0	Muslim	1
189	1	Group 1	25	0	1	Hindu	1
190	2	Group 1	0	0	1	Hindu	0
191	2	Group 1	20	0	1	Hindu	0
192	1	Group 1	5	0	1	Hindu	1
193	1	Group 1	10	1	0	.	0
194	1	Group 1	10	0	1	Hindu	1
195	1	Group 1	5	0	1	Hindu	1
196	0	Group 1	10	0	0	.	1
197	0	Group 1	-5	0	1	.	1
198	0	Group 1	-5	0	1	.	1
199	1	Group 1	10	0	1	.	1
200	0	Group 1	10	0	1	Hindu	1
201	0	Group 1	0	0	1	Hindu	1
202	1	Group 1	5	0	1	Hindu	1
203	1	Group 1	10	0	1	Hindu	1
204	1	Group 1	5	0	1	Hindu	1
205	3	Group 1	15	0	1	Hindu	1
206	0	Group 1	20	0	1	Hindu	.
207	0	Group 1	0	0	0	Hindu	1
208	3	Group 1	-10	0	1	Hindu	1
209	2	Group 1	-10	0	1	Hindu	1
210	2	Group 1	5	0	1	Hindu	1
211	4	Group 2	30	0	1	.	1
212	6	Group 2	45	0	0	.	.
213	7	Group 2	45	0	0	.	.
214	5	Group 2	50	0	1	Hindu	1
215	6	Group 2	25	0	1	Hindu	1
216	3	Group 1	5	0	1	.	1
217	2	Group 1	-10	0	1	Hindu	1
218	0	Group 1	45	0	1	Hindu	1
219	7	Group 2	-5	0	1	Hindu	1
220	6	Group 2	0	0	1	.	0
221	7	Group 2	55	0	1	Hindu	1
222	6	Group 2	20	0	1	.	1

223	3	Group 1	-5	0	1	Hindu	1
224	0	Group 1	55	0	1	Muslim	1
225	0	Group 1	45	0	1	Hindu	1
226	7	Group 2	50	0	1	Hindu	1
227	6	Group 2	-5	0	0	Hindu	1
228	0	Group 1	40	0	1	Hindu	1
229	0	Group 1	20	0	1	Hindu	1
230	1	Group 1	10	0	1	Hindu	1
231	1	Group 1	30	0	0	Hindu	1
232	10	Group 3	45	0	1	Hindu	1
233	5	Group 2	40	0	1	Hindu	1
234	2	Group 1	10	0	1	Hindu	1
235	3	Group 1	5	0	1	Hindu	1
236	2	Group 1	0	0	1	Hindu	1
237	0	Group 1	10	0	1	Hindu	1
238	5	Group 2	40	0	1	Hindu	1
239	5	Group 2	40	0	1	Hindu	1
240	5	Group 2	40	0	1	Hindu	1
241	7	Group 2	40	0	1	Hindu	1
242	9	Group 3	25	1	0	Hindu	1
243	10	Group 3	20	1	0	.	1
244	4	Group 2	80	0	1	Hindu	1
245	8	Group 3	40	0	1	Hindu	1
246	0	Group 1	-100	0	0	.	1
247	5	Group 2	5	0	1	Hindu	1
248	6	Group 2	40	0	1	.	0
249	11	Group 3	-15	0	1	Muslim	1
250	10	Group 3	40	0	1	Muslim	1
251	7	Group 2	55	0	1	Hindu	1
252	6	Group 2	35	0	1	Hindu	1
253	7	Group 2	55	0	1	Hindu	1
254	8	Group 3	45	0	1	Hindu	1
255	7	Group 2	55	0	1	Hindu	1
256	7	Group 2	-20	0	1	.	1
257	10	Group 3	0	0	1	Hindu	1
258	0	Group 1	20	0	1	Hindu	1
259	7	Group 2	25	0	1	Hindu	1
260	9	Group 3	40	1	0	Hindu	1
261	2	Group 1	45	0	1	Hindu	1
262	5	Group 2	50	0	1	Hindu	1
263	9	Group 3	35	0	1	Hindu	1
264	7	Group 2	35	0	1	Hindu	1
265	3	Group 1	25	0	1	Hindu	1
266	7	Group 2	20	0	1	Hindu	1
267	5	Group 2	-35	0	1	Hindu	1
268	7	Group 2	0	0	1	Hindu	1
269	7	Group 2	35	0	1	Hindu	1

270	8	Group 3	55	0	1	Hindu	1
271	8	Group 3	55	1	0	Muslim	1
272	4	Group 2	5	0	1	Hindu	1
273	6	Group 2	-10	0	1	Hindu	1
274	0	Group 1	0	0	1	Muslim	1
275	7	Group 2	10	0	1	Hindu	1
276	7	Group 2	-20	0	1	Hindu	1
277	7	Group 2	-20	0	1	Hindu	1
278	7	Group 2	-5	0	1	Hindu	1
279	7	Group 2	5	0	1	Hindu	1
280	1	Group 1	10	0	1	Hindu	1
281	3	Group 1	40	0	1	Hindu	1
282	1	Group 1	20	0	1	Hindu	1
283	1	Group 1	0	0	1	Hindu	1
284	0	Group 1	15	0	1	Hindu	.
285	6	Group 2	30	0	1	Hindu	1
286	2	Group 1	45	0	0	Hindu	1
287	4	Group 2	15	0	0	.	.
288	4	Group 2	30	0	1	Hindu	1
289	4	Group 2	40	0	1	Christian	1
290	2	Group 1	40	0	1	Hindu	.
291	4	Group 2	30	0	1	Hindu	1
292	1	Group 1	50	0	0	Hindu	1
293	1	Group 1	10	0	1	Hindu	1
294	4	Group 2	45	0	1	Hindu	1
295	1	Group 1	10	0	1	.	.
296	8	Group 3	0	0	1	Hindu	0
297	4	Group 2	-30	0	1	.	1
298	4	Group 2	30	0	1	.	.
299	7	Group 2	-50	0	1	Hindu	1
300	5	Group 2	45	0	1	Hindu	1
301	5	Group 2	45	0	1	Hindu	1
302	4	Group 2	25	0	0	Hindu	1
303	5	Group 2	0	0	1	.	1
304	3	Group 1	20	0	1	Hindu	1
305	7	Group 2	40	0	1	Hindu	1
306	7	Group 2	35	0	1	Hindu	1
307	1	Group 1	55	0	1	Hindu	1
308	4	Group 2	25	0	0	Hindu	1
309	4	Group 2	25	0	1	Hindu	1
310	4	Group 2	25	0	1	Muslim	1
311	6	Group 2	25	0	0	.	1
312	6	Group 2	25	0	0	.	1
313	1	Group 1	0	0	1	Hindu	1
314	1	Group 1	0	0	1	Hindu	1
315	7	Group 2	-15	0	1	Hindu	1
316	4	Group 2	50	0	1	Hindu	1

317	2	Group 1	10	0	1	Hindu	1
318	3	Group 1	50	0	1	Hindu	1
319	7	Group 2	60	0	1	Hindu	.
320	0	Group 1	0	0	1	Hindu	1
321	0	Group 1	0	0	1	Hindu	1
322	7	Group 2	45	0	1	Muslim	1
323	0	Group 1	10	0	1	Hindu	1
324	0	Group 1	-45	0	1	Hindu	1
325	0	Group 1	10	0	1	Hindu	1
326	0	Group 1	0	0	1	Hindu	1
327	4	Group 2	-5	0	1	Hindu	1
328	1	Group 1	0	0	1	Hindu	1
329	4	Group 2	5	0	1	Hindu	1
330	5	Group 2	30	0	1	Hindu	1
331	5	Group 2	35	0	1	Hindu	1
332	5	Group 2	35	0	1	Hindu	1
333	6	Group 2	30	0	1	Hindu	1
334	5	Group 2	-20	1	0	Hindu	1
335	4	Group 2	-30	1	0	Hindu	1
336	5	Group 2	-15	1	0	Hindu	1
337	5	Group 2	45	0	1	Hindu	1
338	6	Group 2	55	0	1	Hindu	1
339	1	Group 1	45	0	1	Hindu	1
340	5	Group 2	40	0	1	Christian	1
341	6	Group 2	15	0	1	.	1
342	4	Group 2	30	0	0	.	.
343	5	Group 2	15	0	1	.	0
344	2	Group 1	20	0	1	Hindu	1
345	3	Group 1	20	0	1	Hindu	0
346	2	Group 1	-25	0	1	Hindu	1
347	1	Group 1	10	0	1	.	.
348	2	Group 1	25	0	1	Hindu	.
349	4	Group 2	35	0	1	Hindu	1
350	9	Group 3	10	0	1	.	1
351	5	Group 2	0	0	0	.	1
352	0	Group 1	0	0	1	Hindu	1
353	0	Group 1	0	0	1	Hindu	1
354	3	Group 1	40	0	0	Hindu	1

Srl Nos	Monthly Household Income				Age	Self rating of knowledge	Self rating of vulnerability	Power to take decisions	Attendance in workshops	Do you think using the preventive measures would hamper your freedom
	Less than Rs 10,000	Rs 10,000 to Rs 24,999	Rs 25,000 to Rs 49,999	Above Rs 50,000						
1	0	1	0	0	22	5	5	0	0	1
2	0	0	1	0	20	5	5	1	0	1
3	0	0	1	0	21	5	5	1	1	1
4	0	0	1	0	20	5	5	1	0	1
5	1	0	0	0	21	5	-5	1	0	1
6	0	0	0	1	21	5	-5	1	0	1
7	0	1	0	0	20	5	-10	1	1	1
8	0	1	0	0	21	5	-10	1	0	1
9	0	0	0	1	20	5	-10	1	1	1
10	0	0	0	1	21	5	-5	1	1	1
11	1	0	0	0	21	10	-10	1	1	1
12					22	5	-10	1	1	1
13	1	0	0	0	21	10	-10	1	1	1
14					20	5	-10	1	1	1
15	0	0	0	1	21	10	-10	1	1	1
16	0	1	0	0	20	-5	-5	1	0	1
17	0	0	0	1	22	5	-10	1	1	1
18	0	0	1	0	21	-5	-10	1	0	1
19	0	0	0	1	20	5	-5	1	0	1
20	0	0	1	0	20	5	-10	1	0	1
21					20	5	-10	1	0	1
22					20	5	-5	1	1	1
23	0	0	1	0	20	-5	-5	1	1	1
24					20	5	-5	1	0	1
25	0	1	0	0	21	5	-5	1	1	1
26					20	5	-10	1	0	1
27	0	0	1	0	20	5	-10	1	0	1
28					20	5	-10	1	1	1
29					.	5	-5	1	0	1
30	0	0	1	0	20	5	-5	1	1	1
31	0	0	1	0	20	5	-5	1	0	1
32	0	0	0	1	20	-5	10	1	1	1
33	0	1	0	0	21	5	-10	1	1	1
34	0	0	1	0	21	5	-10	1	1	1
35	0	1	0	0	21	5	-5	1	1	1
36	0	1	0	0	20	5	-5	0	1	1
37	0	0	1	0	21	5	-10	1	0	0
38	0	0	0	1	20	-5	-10	1	0	1
39	0	0	1	0	20	-10	-10	1	0	1
40	0	0	1	0	19	5	-5	1	1	1
41	0	0	0	1	21	5	-10	1	1	1
42	0	0	0	1	21	5	-5	1	0	1
43					21	-5	-10	1	0	1
44	0	1	0	0	22	5	-10	0	1	1

45	0	1	0	0	21	5	-10	0	1	1
46					20	-10	0	.	0	1
47	0	1	0	0	20	-10	-10	1	0	1
48	0	0	1	0	20	5	-5	1	0	1
49	0	0	1	0	20	5	-5	1	1	1
50	0	1	0	0	20	5	-10	0	0	1
51	0	1	0	0	20	-5	-5	1	0	1
52	0	1	0	0	20	5	-10	0	0	1
53	0	1	0	0	20	5	-10	0	0	1
54	0	1	0	0	21	-5	-10	1	0	1
55	1	0	0	0	21	-5	-5	1	0	1
56	0	1	0	0	20	5	-5	1	1	1
57	0	1	0	0	20	5	-5	1	1	1
58	0	0	1	0	20	5	-10	1	0	1
59	1	0	0	0	20	5	-5	1	0	1
60	0	1	0	0	18	5	-5	.	0	1
61	1	0	0	0	23	-5	-5	0	0	1
62	0	0	1	0	21	5	-5	1	0	1
63	0	1	0	0	20	5	-10	1	0	1
64	0	0	1	0	21	-5	-5	1	0	1
65	1	0	0	0	21	-5	5	1	0	1
66	0	0	1	0	20	5	-5	1	0	1
67	0	1	0	0	20	5	-5	1	0	1
68					21	5	-5	1	0	1
69					19	5	0	1	1	1
70					21	5	0	1	1	1
71					19	5	0	1	1	1
72	1	0	0	0	21	-5	-5	0	1	1
73	0	0	0	1	20	5	-10	.	1	1
74	0	1	0	0	24	5	-10	1	1	1
75	1	0	0	0	22	5	0	.	1	0
76					21	5	0	1	1	1
77	1	0	0	0	.	-5	0	1	0	1
78	1	0	0	0	.	5	0	.	.	0
79	1	0	0	0	.	-5	0	1	0	1
80	0	0	0	1	21	-5	-10	1	0	1
81					20	-5	-10	1	0	1
82	1	0	0	0	20	5	-10	1	1	1
83	1	0	0	0	21	5	-5	1	1	1
84	1	0	0	0	21	5	-5	1	1	1
85	0	0	1	0	22	5	-5	1	0	1
86	0	1	0	0	23	5	-10	1	1	1
87					24	-5	-5	1	0	1
88	1	0	0	0	20	-5	-5	1	0	1
89	0	1	0	0	21	5	-5	1	0	1
90	1	0	0	0	22	-5	-5	1	0	0
91	1	0	0	0	20	-5	-5	1	1	1
92	0	1	0	0	20	5	-5	1	0	1
93	0	1	0	0	20	5	-5	1	1	1

94					21	5	-5	1	1	1
95	0	1	0	0	21	5	5	1	1	1
96	0	1	0	0	20	5	5	1	1	1
97					20	-5	-5	0	1	1
98	0	0	1	0	22	5	-5	1	0	1
99	0	0	1	0	20	5	-10	1	1	1
100	0	0	1	0	20	5	-10	1	1	1
101	0	0	0	1	21	10	-10	1	1	1
102	0	1	0	0	22	-5	5	1	1	1
103	0	0	1	0	20	-5	-5	1	0	1
104	0	1	0	0	20	-5	-5	1	0	1
105					21	-5	0	1	0	1
106	0	0	0	1	20	5	-5	1	0	1
107	0	0	1	0	22	5	-5	0	0	1
108					21	5	-5	1	0	1
109					21	5	-5	0	0	0
110	0	1	0	0	.	-5	-5	0	0	1
111	0	0	1	0	20	5	-10	1	0	1
112	0	1	0	0	20	5	-10	1	0	1
113	1	0	0	0	20	5	-5	1	1	1
114	0	0	1	0	20	5	-5	1	1	1
115	0	0	0	1	20	5	-10	1	1	1
116	0	0	1	0	20	-5	0	1	0	1
117	0	0	1	0	20	-5	0	1	0	1
118	0	1	0	0	21	5	-10	1	1	1
119	0	1	0	0	20	5	-5	1	0	1
120	0	1	0	0	20	5	-5	1	1	1
121	0	0	1	0	20	5	-5	1	0	1
122	0	1	0	0	20	5	-10	1	0	1
123	0	0	0	1	20	5	-5	1	0	1
124	0	0	1	0	20	5	5	1	1	1
125	0	1	0	0	20	5	-5	1	1	1
126	0	0	1	0	20	5	-5	0	0	1
127	0	0	0	1	20	5	-10	1	1	1
128	0	0	1	0	20	5	-10	1	0	1
129	0	1	0	0	20	-5	5	1	1	1
130	0	0	0	1	19	5	-5	0	1	1
131	0	0	0	1	21	-5	-10	0	1	1
132	0	0	0	1	21	5	-10	1	0	1
133	0	1	0	0	21	5	10	1	1	1
134	0	0	1	0	20	5	5	1	0	1
135	0	0	1	0	20	5	-5	1	1	1
136	0	1	0	0	20	5	-5	1	0	1
137	0	1	0	0	22	5	-10	1	1	1
138	1	0	0	0	22	-5	-10	1	0	1
139	1	0	0	0	22	-5	-10	1	0	1
140	0	0	1	0	22	-10	-10	1	0	1
141	1	0	0	0	22	5	10	1	1	1
142	0	0	1	0	22	-5	-5	1	0	1

143	1	0	0	0	21	-5	-5	1	0	1
144	0	0	1	0	22	-5	-5	1	0	1
145	1	0	0	0	18	-5	-10	1	1	1
146	0	1	0	0	18	5	-5	0	1	1
147	0	1	0	0	18	5	-5	0	1	1
148					18	5	-5	1	1	1
149	0	1	0	0	18	5	-5	0	0	1
150	1	0	0	0	18	5	-10	1	1	1
151	0	1	0	0	18	5	5	1	0	1
152	0	1	0	0	18	5	-10	1	1	1
153	0	0	1	0	19	5	-10	1	0	1
154	0	0	1	0	18	5	10	1	1	1
155	0	1	0	0	19	-5	-10	0	0	1
156	0	0	1	0	18	5	-10	1	1	1
157	0	1	0	0	18	5	-10	1	0	1
158	0	1	0	0	18	5	5	1	0	1
159	0	1	0	0	18	-5	-10	1	0	1
160	0	1	0	0	18	-5	-10	1	1	1
161	0	1	0	0	18	5	0	0	1	1
162	1	0	0	0	18	5	-10	1	1	1
163	0	1	0	0	19	-10	-10	1	1	1
164	1	0	0	0	18	5	10	1	.	1
165	0	0	1	0	18	5	-10	1	1	1
166					18	0	0	1	.	.
167	1	0	0	0	18	10	-5	1	1	0
168					18	-10	0	1	.	0
169	0	1	0	0	18	5	-5	1	0	1
170	1	0	0	0	19	10	0	1	1	0
171	0	1	0	0	18	5	-5	1	1	1
172	1	0	0	0	18	5	-5	1	0	1
173	1	0	0	0	18	5	-5	1	0	1
174	1	0	0	0	19	5	5	1	0	1
175	1	0	0	0	18	5	5	1	0	1
176	0	1	0	0	18	-5	0	.	1	.
177	1	0	0	0	18	-5	0	1	0	0
178	0	1	0	0	18	5	-5	1	1	1
179	0	0	1	0	18	5	5	1	1	1
180	0	1	0	0	18	5	-5	1	1	1
181	1	0	0	0	18	5	-10	1	.	1
182	0	1	0	0	19	5	-5	1	1	0
183	1	0	0	0	18	-5	-10	0	0	1
184	0	0	1	0	18	5	-10	0	1	0
185	1	0	0	0	18	-5	0	1	0	1
186	1	0	0	0	18	-5	0	1	0	1
187					.	5	-5	1	0	1
188					.	-10	0	0	.	1
189	0	1	0	0	18	-5	-5	1	0	1
190	1	0	0	0	18	10	5	1	1	1
191	1	0	0	0	.	10	0	1	0	1

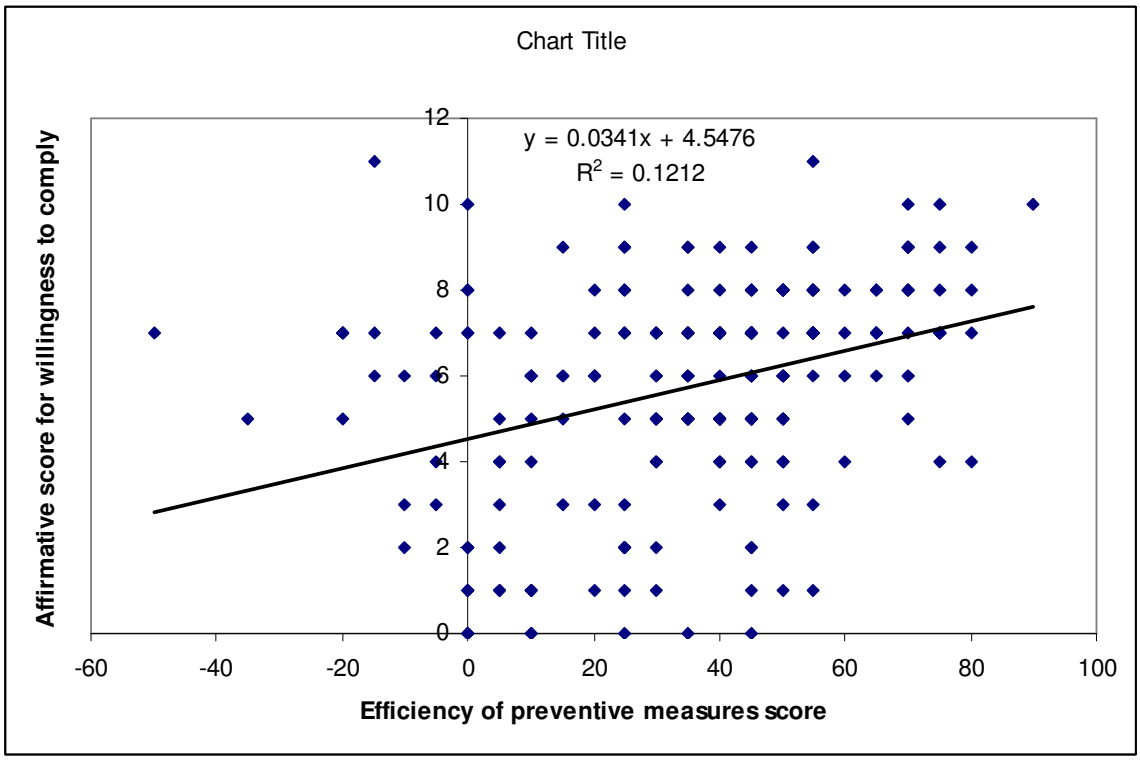
192	0	1	0	0	18	5	-10	1	.	1
193	0	1	0	0	18	-5	0	1	0	.
194	1	0	0	0	19	5	0	1	1	1
195	0	1	0	0	.	5	0	1	1	1
196					18	5	0	.	.	.
197	1	0	0	0	18	-5	0	0	0	1
198	1	0	0	0	18	-5	0	0	0	1
199	0	1	0	0	18	-5	-5	0	0	1
200	0	1	0	0	18	5	-10	1	0	1
201	1	0	0	0	18	-5	0	1	0	1
202	1	0	0	0	19	5	5	1	0	1
203	1	0	0	0	18	5	5	1	0	1
204	1	0	0	0	23	5	5	1	0	1
205	0	0	1	0	18	5	-10	0	1	0
206					18	5	-10	1	1	.
207	1	0	0	0	23	5	-10	1	1	0
208	1	0	0	0	20	5	-10	1	1	1
209	1	0	0	0	20	5	-10	1	1	1
210	1	0	0	0	19	-5	5	1	1	1
211	1	0	0	0	18	5	-10	1	0	0
212					.	5	10	.	0	.
213					.	10	10	.	0	.
214	1	0	0	0	.	5	10	1	1	0
215	1	0	0	0	.	5	10	1	1	0
216	1	0	0	0	18	5	5	1	0	0
217	0	1	0	0	.	5	-10	1	1	1
218	1	0	0	0	18	5	0	1	0	0
219	1	0	0	0	20	5	5	0	0	0
220	1	0	0	0	.	0	0	1	0	0
221	1	0	0	0	18	5	-5	1	0	1
222	1	0	0	0	18	5	-10	1	0	0
223	1	0	0	0	20	-10	5	1	0	1
224	1	0	0	0	20	5	-10	0	.	1
225	1	0	0	0	18	0	0	0	.	1
226	0	1	0	0	.	5	-10	1	1	0
227	0	1	0	0	18	5	-10	1	1	1
228	1	0	0	0	18	5	-10	1	1	.
229	1	0	0	0	18	5	0	1	1	.
230	1	0	0	0	18	5	5	1	1	1
231	1	0	0	0	18	-5	0	1	0	1
232	0	1	0	0	.	5	-5	1	0	0
233	1	0	0	0	18	5	-5	1	1	1
234	1	0	0	0	18	5	5	1	1	1
235	1	0	0	0	18	10	10	1	1	0
236	1	0	0	0	19	-5	-5	1	1	1
237	1	0	0	0	18	-5	0	1	0	0
238	1	0	0	0	19	5	-5	0	1	0
239	1	0	0	0	18	5	-5	1	1	1
240	1	0	0	0	18	5	-5	0	1	1

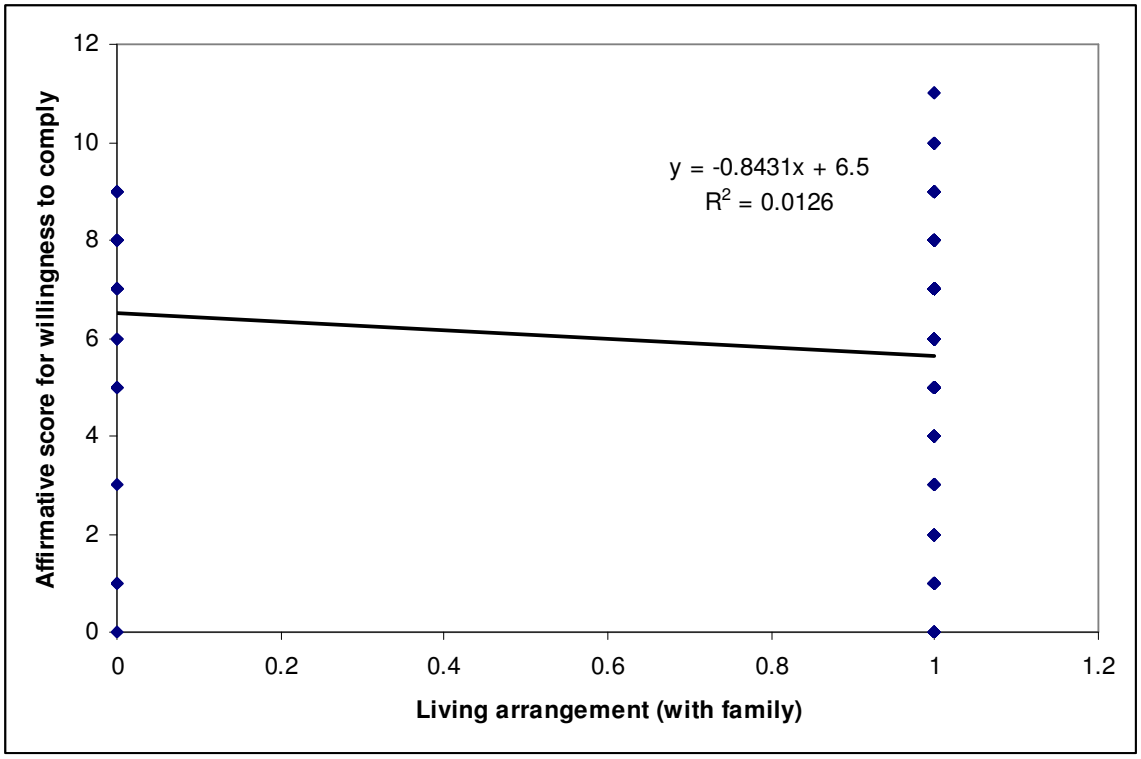
241	1	0	0	0	18	5	-10	0	1	0
242	1	0	0	0	18	5	-5	1	0	0
243	1	0	0	0	18	5	-5	1	0	0
244	1	0	0	0	18	5	-10	1	0	1
245	0	1	0	0	18	5	-10	1	0	1
246	0	1	0	0	18	5	-10	1	1	1
247	0	1	0	0	18	5	-10	1	0	1
248	0	1	0	0	.	5	0	1	1	1
249	0	1	0	0	19	-5	0	1	0	1
250	1	0	0	0	19	5	-10	1	0	.
251	0	0	1	0	18	-5	-10	1	.	1
252	1	0	0	0	18	-5	-10	1	0	1
253	1	0	0	0	18	-5	-10	1	.	1
254	0	0	0	1	19	-5	-10	1	0	1
255	0	0	0	1	19	-5	-10	1	0	1
256	1	0	0	0	19	-5	0	0	0	1
257	0	1	0	0	18	5	5	0	0	1
258	0	1	0	0	.	-5	-5	1	0	1
259	0	1	0	0	22	5	-10	1	0	1
260	1	0	0	0	22	-5	-5	1	1	1
261	1	0	0	0	22	-5	-5	1	0	1
262	1	0	0	0	21	-5	-5	1	0	1
263	1	0	0	0	22	-5	-5	1	0	1
264	1	0	0	0	22	-5	-5	1	0	1
265	0	1	0	0	23	5	-10	1	0	1
266	1	0	0	0	22	-5	-5	1	0	1
267	0	0	1	0	24	-5	10	1	1	1
268	0	1	0	0	22	5	-10	1	0	1
269	1	0	0	0	21	-5	-10	1	0	1
270	0	0	1	0	22	5	5	1	0	1
271	0	1	0	0	21	5	10	1	0	1
272	0	0	1	0	22	-5	10	1	0	1
273	1	0	0	0	18	5	5	1	0	0
274	1	0	0	0	20	-5	-5	0	0	0
275					19	5	-5	1	0	1
276	1	0	0	0	19	5	-5	1	0	1
277	1	0	0	0	19	5	-5	1	0	1
278					18	5	-5	1	0	1
279					18	5	0	0	0	1
280	1	0	0	0	19	10	10	1	1	0
281	1	0	0	0	18	5	5	1	0	1
282	1	0	0	0	20	5	0	0	0	0
283	1	0	0	0	18	0	0	.	.	.
284					.	-5	0	1	1	1
285					19	5	-10	1	1	.
286					18	5	5	.	0	.
287					.	-10	-10	0	0	0
288	1	0	0	0	21	10	-10	1	0	1
289	0	1	0	0	20	5	-10	1	0	1

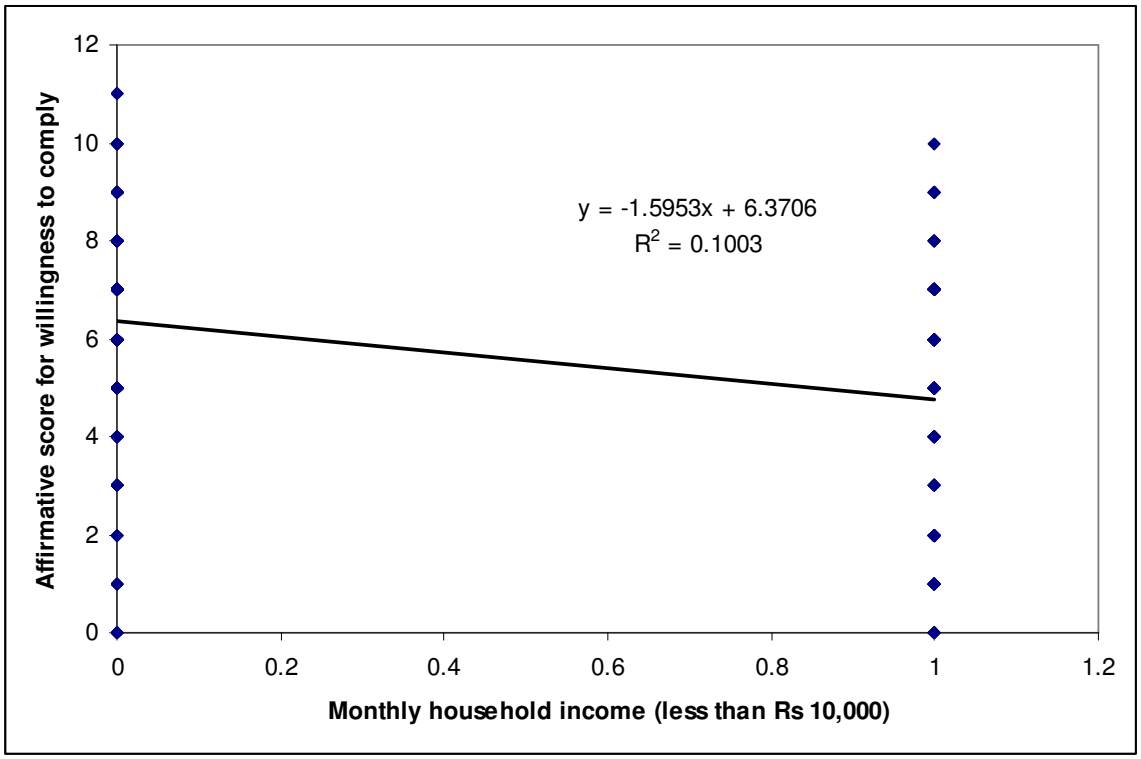
290					.	5	-10	1	0	1
291	1	0	0	0	18	5	-10	1	0	0
292	1	0	0	0	18	5	-10	1	1	0
293	1	0	0	0	18	5	5	1	0	1
294	1	0	0	0	19	5	-5	1	1	0
295					.	-5	0	1	0	0
296	1	0	0	0	24	5	-5	1	.	0
297	0	1	0	0	.	0	5	1	1	0
298	1	0	0	0	.	-5	0	1	0	0
299	1	0	0	0	18	-5	-10	1	0	0
300	0	1	0	0	18	10	10	1	1	0
301	0	1	0	0	18	10	10	1	1	0
302	0	1	0	0	.	10	10	1	.	0
303	1	0	0	0	18	-5	-5	0	0	0
304	1	0	0	0	19	0	10	1	.	0
305	0	1	0	0	18	-5	5	1	0	1
306	1	0	0	0	18	-5	5	1	0	1
307	0	0	1	0	18	5	-10	1	0	1
308	0	1	0	0	.	5	0	0	0	1
309	0	1	0	0	.	5	0	1	0	1
310	1	0	0	0	19	5	0	1	0	1
311	1	0	0	0	18	-5	0	.	0	.
312					18	-5	-5	.	0	.
313	1	0	0	0	18	5	5	1	0	0
314	1	0	0	0	18	5	5	1	0	0
315	1	0	0	0	19	5	-5	1	0	1
316	1	0	0	0	18	10	-10	1	1	1
317	1	0	0	0	19	10	-10	1	0	1
318	0	1	0	0	18	-5	5	0	0	0
319	1	0	0	0	18	-5	-5	1	1	1
320					18	-5	-5	1	0	0
321					19	5	-5	1	0	0
322	0	1	0	0	18	-5	-5	1	0	1
323					19	5	-10	1	0	1
324	1	0	0	0	18	-5	-10	1	.	1
325					18	5	-10	1	0	1
326					18	5	0	1	.	1
327	1	0	0	0	18	5	-10	1	1	1
328	1	0	0	0	18	5	-5	0	0	1
329	1	0	0	0	19	5	-10	1	1	1
330	1	0	0	0	18	-5	-5	1	0	0
331	1	0	0	0	18	5	-5	1	1	1
332	1	0	0	0	18	5	-5	1	1	1
333	1	0	0	0	20	5	-10	1	0	1
334	1	0	0	0	20	5	5	.	1	.
335					20	5	-5	.	1	.
336	1	0	0	0	20	5	5	.	1	.
337	1	0	0	0	18	5	-5	1	0	1
338	0	0	1	0	18	5	-5	.	1	1

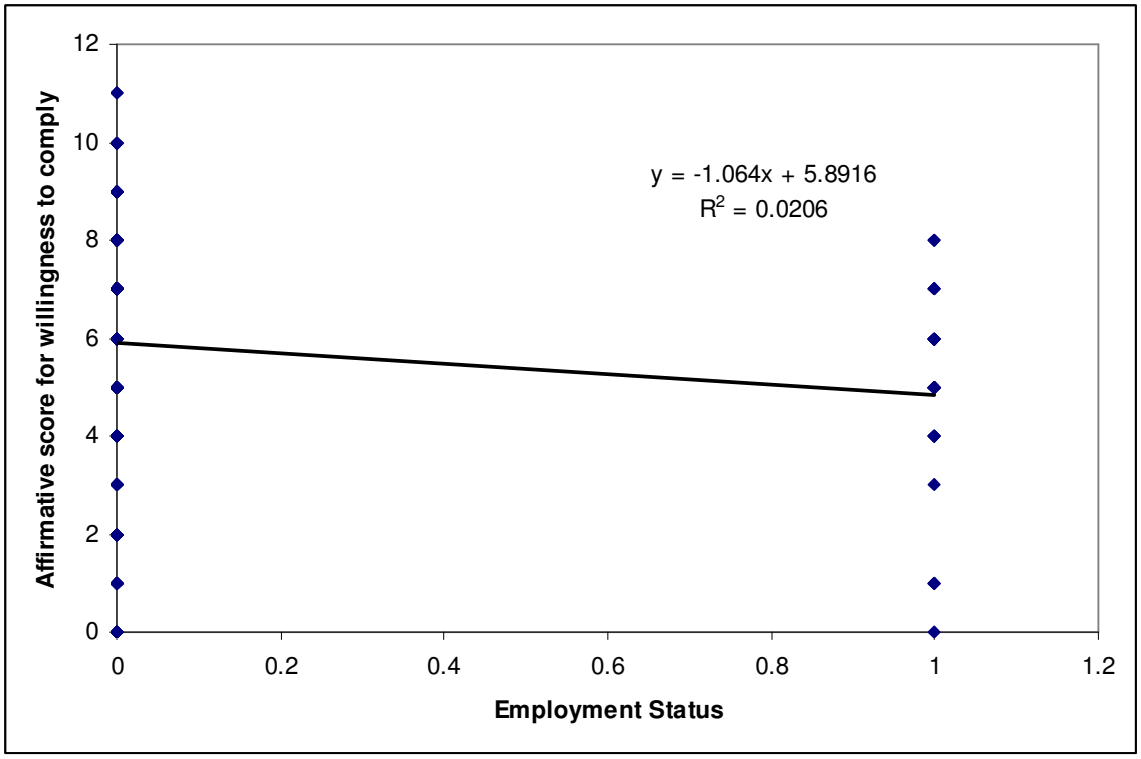
339	0	0	1	0	18	5	-5	1	1	1
340	0	1	0	0	19	5	-10	1	0	1
341	1	0	0	0	.	0	0	0	0	.
342	0	1	0	0	.	5	5	0	.	.
343	1	0	0	0	.	0	0	0	.	.
344	1	0	0	0	18	5	5	1	0	1
345					20	10	0	1	0	1
346					18	5	-5	1	.	1
347					.	-5	0	1	0	0
348	1	0	0	0	18	5	-5	1	1	0
349	1	0	0	0	19	-5	-10	.	0	1
350	1	0	0	0	23	0	0	1	.	1
351	0	0	0	1	.	-5	-5	0	0	1
352	1	0	0	0	.	10	10	1	.	1
353	0	1	0	0	19	10	10	1	0	1
354	0	1	0	0	19	5	5	0	0	.

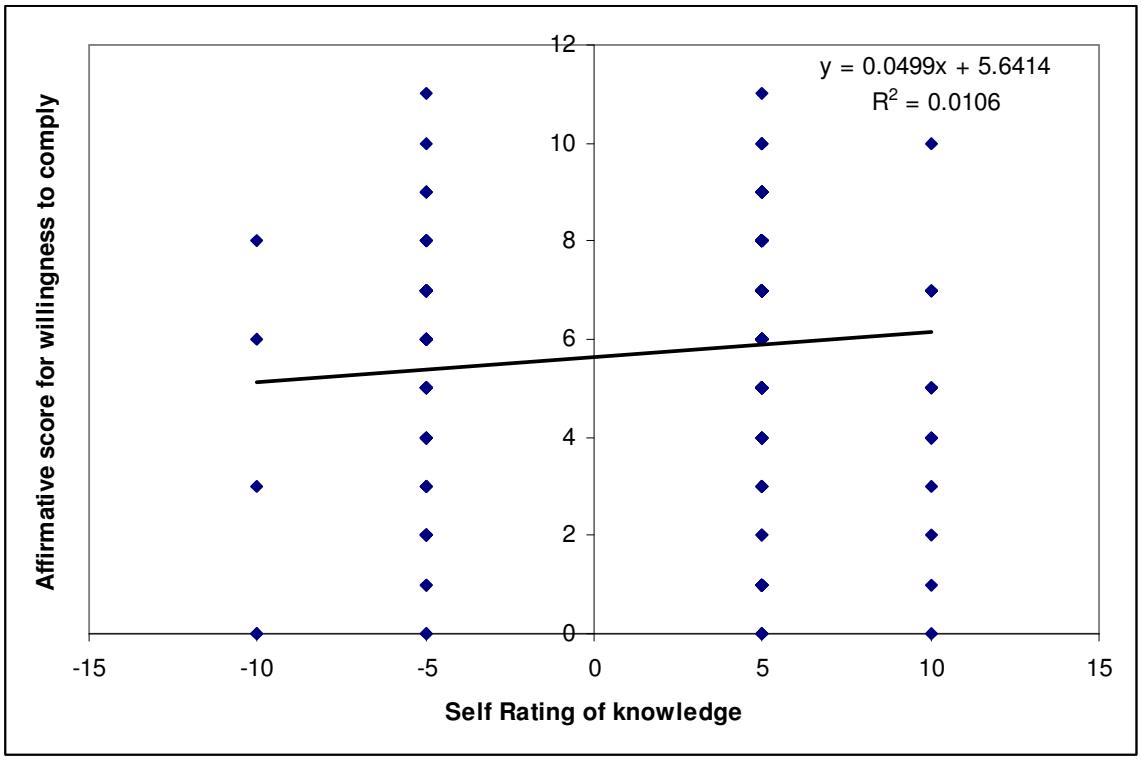
Appendix C - Scatterplots

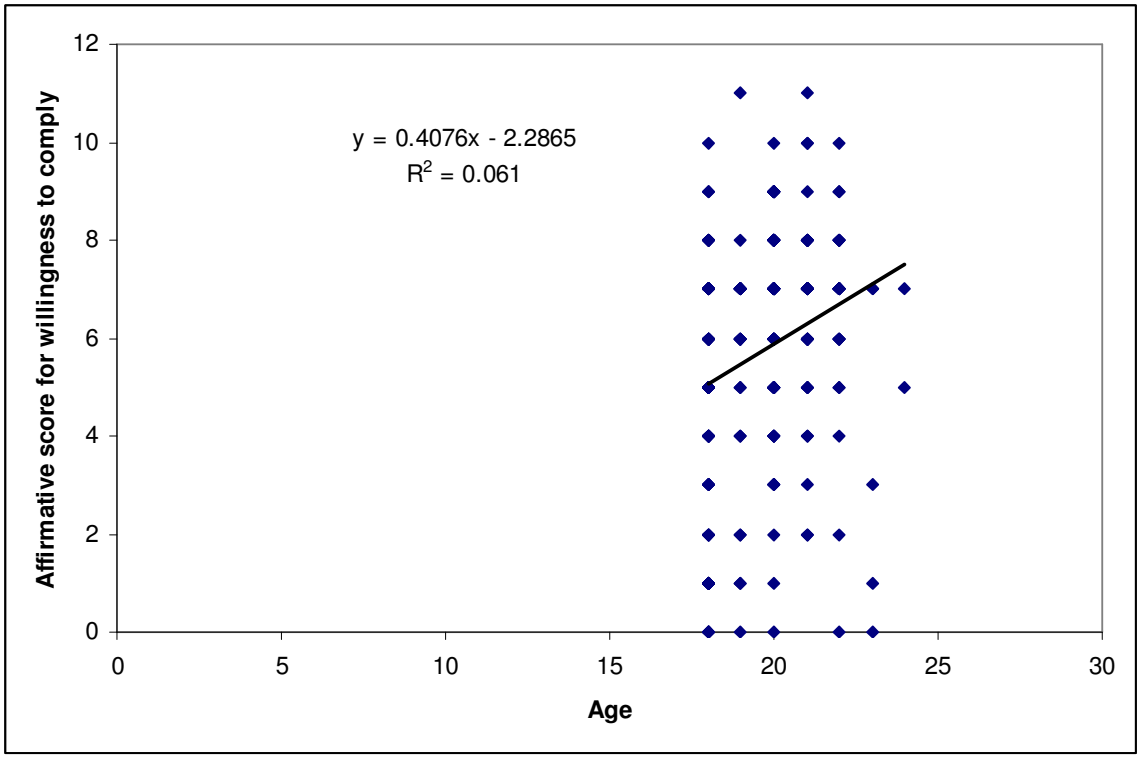


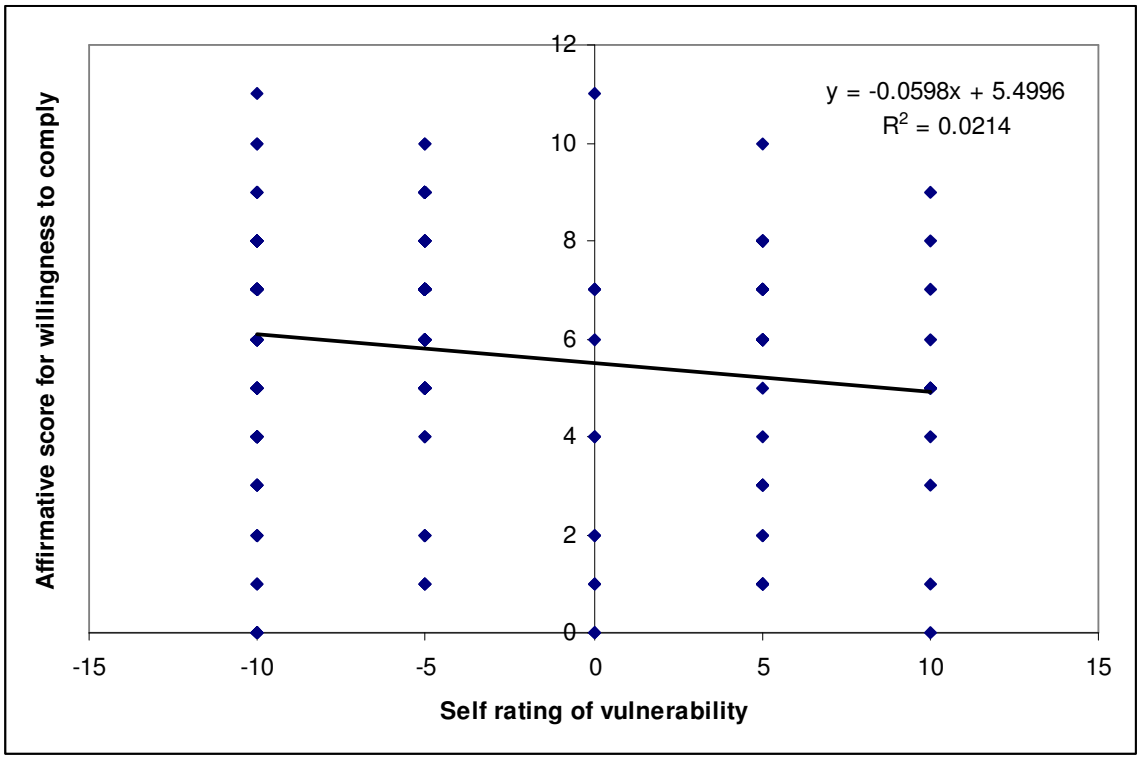

Affirmative score for willingness to comply
12
10
8
6
4
2
0
y = -0.8431x + 6.5
R2 = 0.0126
0
0.2
0.4
0.6
0.8
1
1.2
Living arrangement (with family)

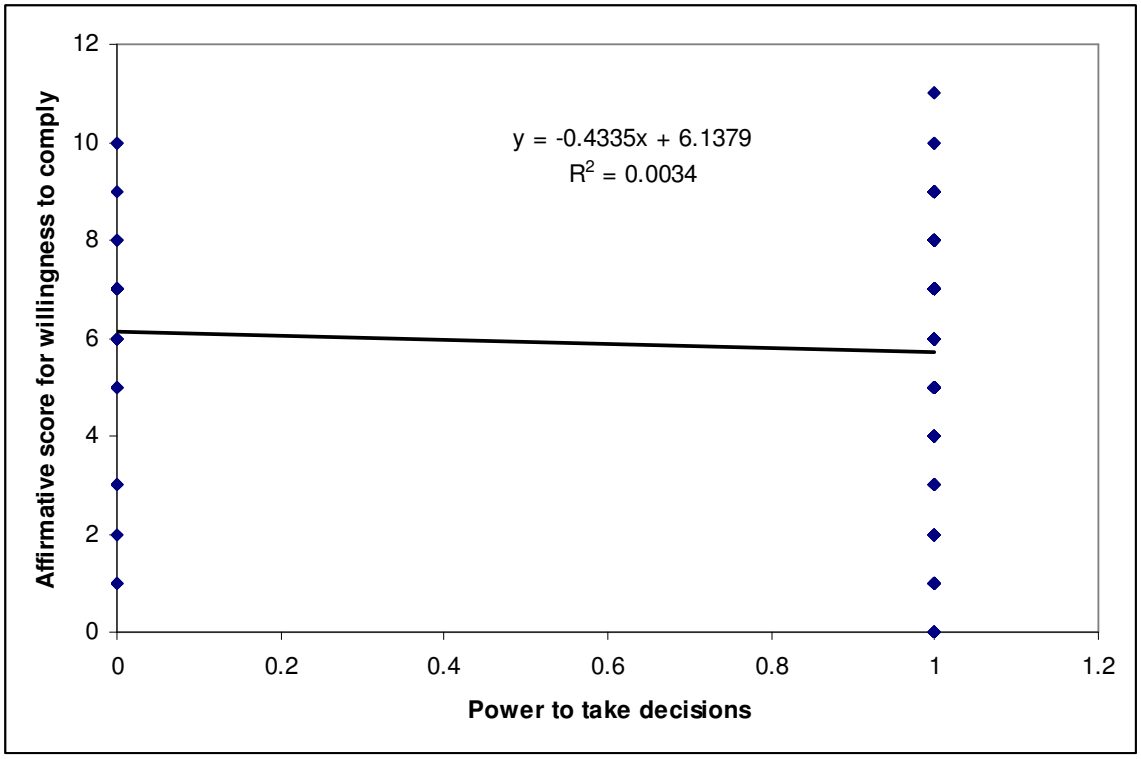

Affirmative score for willingness to comply
12
10
8
6
4
2
0
y = -1.5953x + 6.3706
R2 = 0.1003
0
0.2
0.4
0.6
0.8
1
1.2
Monthly household income (less than Rs 10,000)

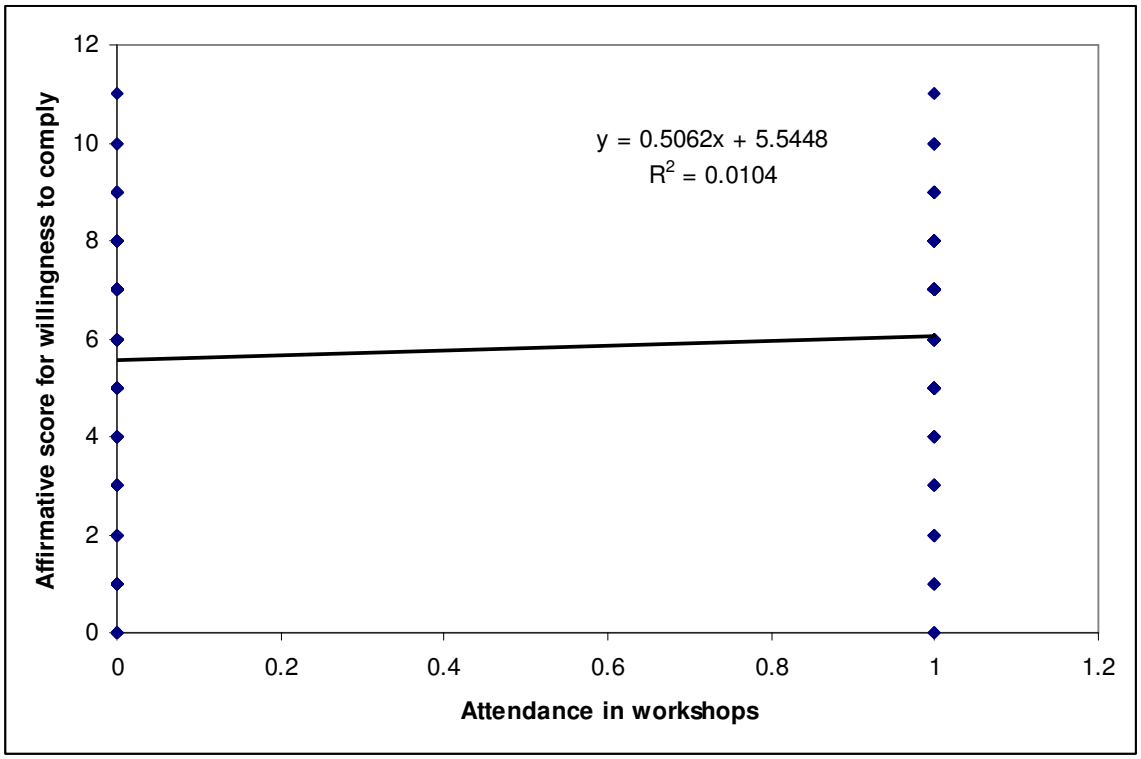

Affirmative score for willingness to comply
y = -1.064x + 5.8916
R2 = 0.0206
Employment Status
0
2
4
6
8
10
12
0
0.2
0.4
0.6
0.8
1
1.2

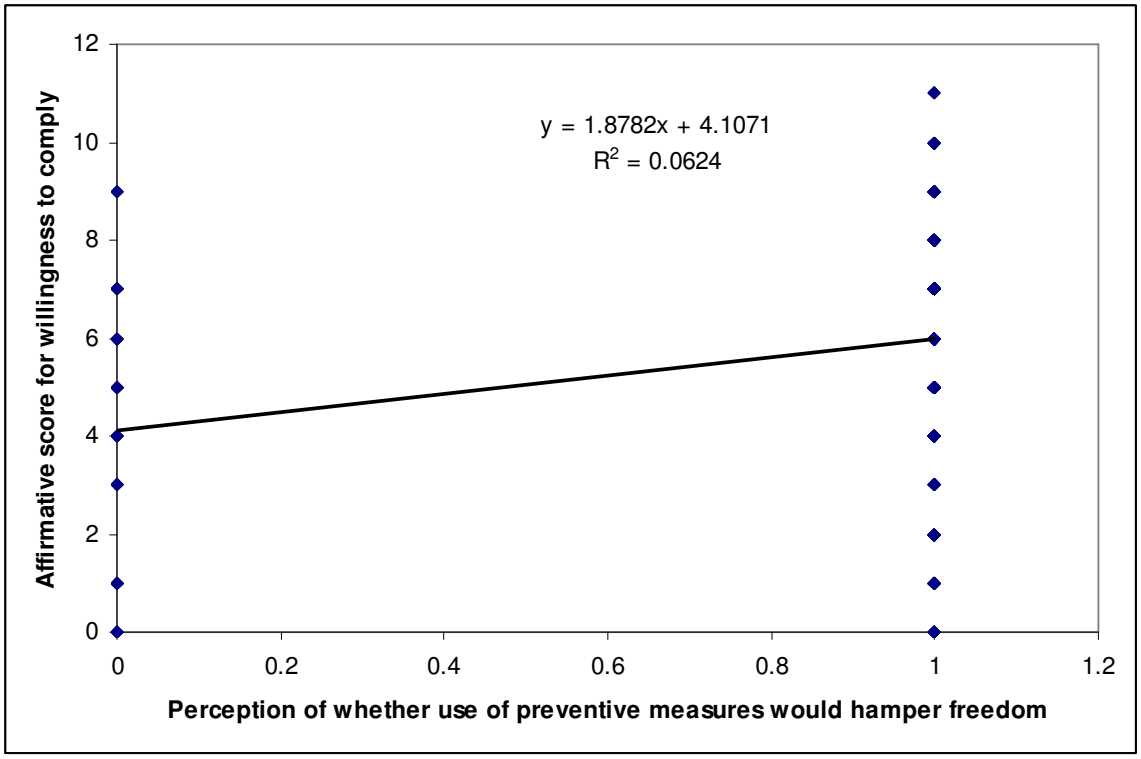

Affirmative score for willingness to comply
y = 0.0499x + 5.6414
R2 = 0.0106
Self Rating of knowledge
0
2
4
6
8
10
12
-15
-10
-5
0
5
10
15

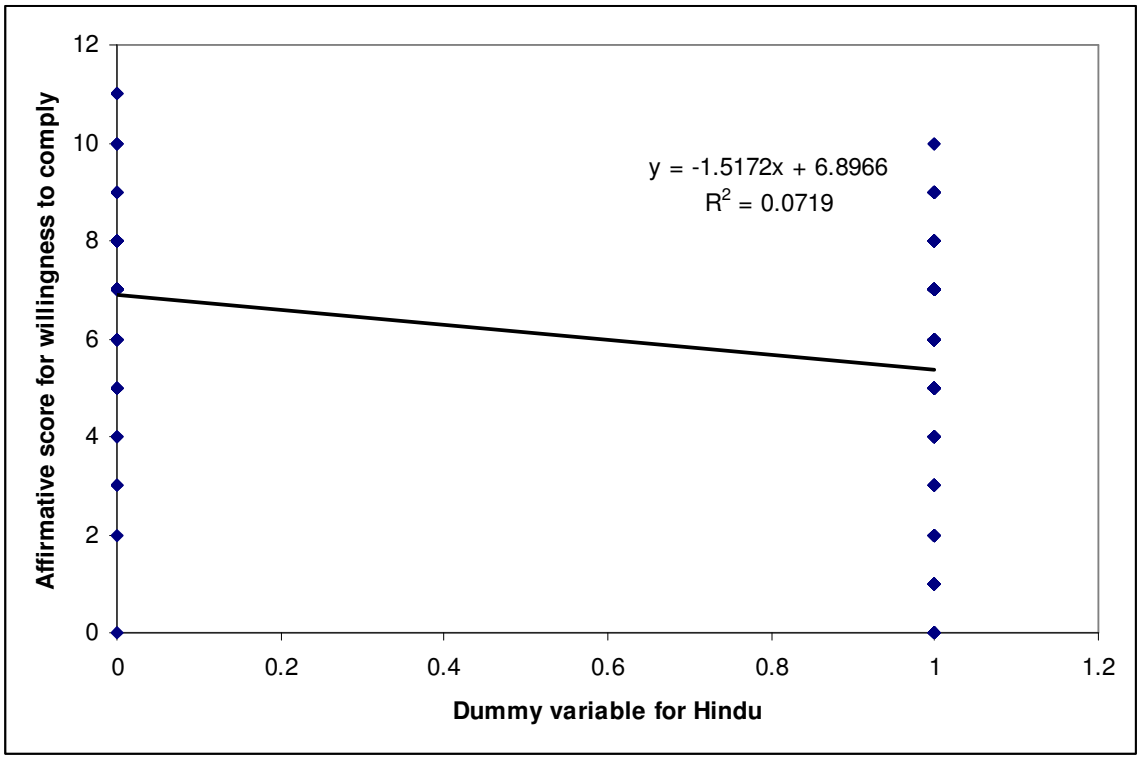

y = 0.4076x - 2.2865
R2 = 0.061
Affirmative score for willingness to comply
Age
0
2
4
6
8
10
12
0
5
10
15
20
25
30

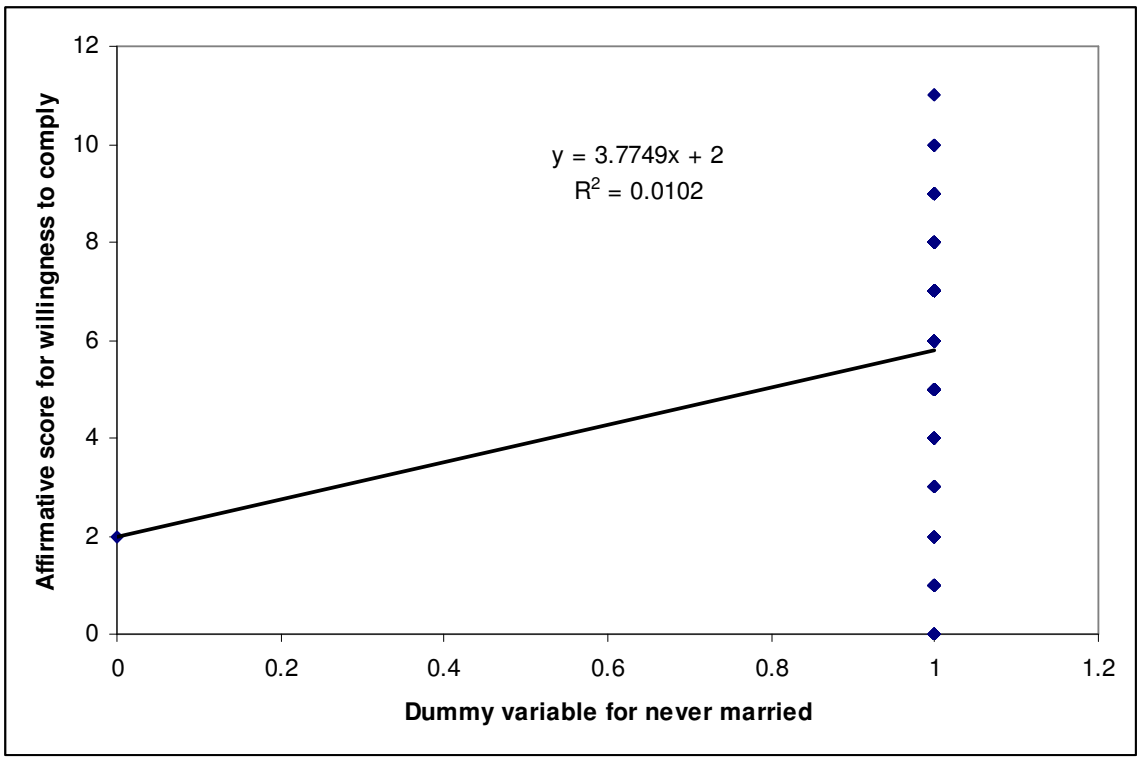

y = -0.0598x + 5.4996
R2 = 0.0214
Affirmative score for willingness to comply
Self rating of vulnerability
0
2
4
6
8
10
12
-15
-10
-5
0
5
10
15


y = -0.4335x + 6.1379
R2 = 0.0034
Affirmative score for willingness to comply
Power to take decisions
0
2
4
6
8
10
12
0
0.2
0.4
0.6
0.8
1
1.2


y = 0.5062x + 5.5448
R2 = 0.0104
Affirmative score for willingness to comply
Attendance in workshops
0
2
4
6
8
10
12
0
0.2
0.4
0.6
0.8
1
1.2


y = 1.8782x + 4.1071
R2 = 0.0624
Affirmative score for willingness to comply
Perception of whether use of preventive measures would hamper freedom
0
2
4
6
8
10
12
0
0.2
0.4
0.6
0.8
1
1.2


y = -1.5172x + 6.8966
R2 = 0.0719
Affirmative score for willingness to comply
Dummy variable for Hindu
0
2
4
6
8
10
12
0
0.2
0.4
0.6
0.8
1
1.2


y = 3.7749x + 2
R2 = 0.0102
Affirmative score for willingness to comply
Dummy variable for never married
0
2
4
6
8
10
12
0
0.2
0.4
0.6
0.8
1
1.2

Appendix D - Standard Estimate Values and Variance Inflation Factor (VIF) for variables used in regression analysis

Variables	Model 1		Model 2		Model 3	
	Standardized estimate	VIF	Standardized estimate	VIF	Standardized estimate	VIF
Intercept	0	0	0	0	0	0
Age	0.121	1.218	0.122	1.217	0.121	1.18
Religion (Dummy variable for Hindu)	-0.135*	1.174	-0.136*	1.172	-0.142*	1.166
Dummy variable for income less than Rs 10,000	-0.122	1.269	-0.121	1.268	-0.144*	1.22
Dummy variable for living arrangement with family	-0.099	1.029	-0.102	1.017	-0.106	1.016
Dummy variable for never married	0.063	1.054	0.063	1.041	-	-
Self rating of knowledge	0.081	1.183	0.090	1.096	-	-
Self rating of vulnerability	-0.025	1.081	-	-	-	-
Power to take decisions	-0.088	1.041	-0.09	1.037	-0.098	1.024
Attendance in workshops	0.033	1.13	-	-	-	-
Perception of whether use of preventive measures would hamper freedom	0.147*	1.22	0.15*	1.193	0.133*	1.167
Employment Status	-0.061	1.074	-0.063	1.071	-	-
Efficiency of preventive measures score	0.237**	1.172	0.244**	1.141	0.263**	1.095
R^2	0.2705		0.2689		0.2556	
F Ratio	6.77**		8.13**		10.99**	